





OBSERVATIONS
ON
DIARRHOEA AND DYSENTERY,
PARTICULARLY AS THESE DISEASES APPEARED IN
THE BRITISH CAMPAIGN OF EGYPT,
IN 1801.

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OBSERVATIONS
ON
DIARRHŒA AND DYSENTERY.

CHAP. I.

INTRODUCTION—THE CLIMATE OF EGYPT—
ITS INFLUENCE ON THE NATIVES—ON FO-
REIGNERS IN GENERAL—AND ON THE BRITISH
ARMY DURING THE CAMPAIGN IN 1801.

EGYPT has been frequently described by learned men, who have had opportunities of acquiring a minute knowledge of every circumstance worthy of relation. Amidst the uncertainties of a military campaign, and the constant exertions necessary to discharge our duty, and to provide for our personal comfort, it was impossible to devote much time to a philosophical investigation of the country. I shall therefore give a short recapitulation of the leading circumstances mentioned by travellers, that relate to my present purpose.

Egypt is well known to be a flat country, separated from the rest of the cultivated world, partly by deserts, and partly by the sea. It is bounded on the west by the immense desert of

Barca; on the east, by the desert of Suez, and the Red Sea; on the north, by the Mediterranean; and tapers in its southern part almost to a point, terminating where the banks of the Nile become unfit for cultivation. It extends from $30^{\circ} 21'$ to 23° north latitude, and from $31^{\circ} 11'$ to about 34° east longitude. Its general temperature is very high in proportion to its latitude. On this subject, I shall give a short sketch of a thermometrical journal kept in Cairo while the French were masters of the country, and which is given at large in the work published by M. DESGENETTES.

Periods.	Highest temperature in the morning.	Lowest temperature in the morning.	Highest temperature at noon.	Lowest temperature at noon.
From Sept. 25 to Oct. 30, 1798	58 Fahr.	35½	89½	71
From Nov. 1 to Nov. 24 -	—	—	77	69
From Jan. 1, 1799, to Feb. 28	58	40	72½	58
From March 3 to April 4	68	41	—	—
From April 5 to the 30th	75	58	—	—
May - - - - -	80½	68	99½	81½
June - - - - -	78	65½	105	90½
July - - - - -	83¾	69	100 2-3ds	95
August 1—16 - - - -	82½	58	98½	93
From Aug. 17 to Nov. 15 -	<p>At this period the gentleman who kept the journal was employed in making his tour of Upper Egypt, which interrupted his observations at Cairo. Now, however, he tried to ascertain the highest point to which the thermometer rose, and found, on the 5th of September, opposite to the ruins of Thebes, that when the instrument was stuck in the sand at mid-day, it rose to 154, and in the shade to 100. On the 14th, at the isle of Philé, above Syene, it rose in the sand to above 154, and in the shade to 108½.</p>			
Nov. 16—30 - - - -	59	48	76	63½
December - - - - -	59	44	77	64 2-3ds
Jan. 1—19, 1800 - - -	55½	41	76	61½

This

This sketch can only give a rude approximation to the general state of the thermometer at Cairo, as, in some of the periods, there are but few observations given in the Journal referred to. Though from these I have selected the highest and the lowest, others may have occurred, within the same periods, both higher and lower. For example, from November the 1st, 1799, to the end of February, only two observations are given at noon, in the table published by M. DESGENETTES. In this abstract, the higher is put in the third column, and the lower in the fourth.

The most singular circumstance in the meteorology of Egypt is, that rain is almost unknown in its interior parts. Dew also, excepting near the sea-coast, is much less copious than in other hot countries. The fertility of the fields solely depends on the annual overflowing of the Nile. During the summer months, however, there is very little marshy ground, except what is kept artificially moist for the production of rice. At that time, the soil, in hardness, resembles one continued rock, and is fissured every where with deep chinks. In some places, when asses and horses are driven along, their feet are entangled in these chinks at every step, and

seem in imminent danger of being broken. When we encamped in the Delta, the soil was so hard, that it was impossible to drive a tent-pin into it, except by fixing it in one of the openings; and the detached clods, lying around, were hard enough to be used as mallets.

Hot countries cannot be considered in general as more unfavourable to the population of the human race, or the vigour of the constitution, than the cold and temperate. Egypt is as well peopled, in proportion to the state of its industry and resources, as most other countries. The children have a delicate, rickety appearance; but, as life advances, their constitutions acquire a firmer cast. SAVARY was never more mistaken, than when he said that “effeminacy is born with the Egyptian, grows up with him as he advances in life, and follows him to the tomb.” This character is confined to a few of the wealthy inhabitants of the cities. The Mamelukes are addicted to luxury; but their bodies are robust, and capable of wonderful feats of strength, and their minds are warlike and undaunted. The felahs, or peasantry, are rendered a cowardly race, from being habitually subjected to the yoke of military despotism, and from their habits

habits of industry being repugnant to the cultivation of the art of war; but their constitutions are hardy. Under a burning sun, and with their heads uncovered, they perform very long journeys, and carry incredible burdens, without complaining of fatigue. The Bedouins, or inhabitants of the neighbouring deserts, are also a hardy race, capable of undergoing great privations, and persevering in vigorous exertions, and are the farthest possible removed from any thing like a state of luxury or effeminacy. The enervating influence of the climate, therefore, is, with respect to the natives, a mere chimera.

Egypt is less exposed than most other flat countries, in high latitudes, to bilious fevers of the intermittent and remittent kind, as it is free from those marshy miasmata which serve to generate and to cherish the contagion of these diseases. Intermittent fevers only prevail during the decrease of the Nile, in houses surrounded with stagnant water. At other seasons they are confined to places in the neighbourhood of extensive rice-grounds, such as the town of Damietta. This advantage, however, is more than counterbalanced by the dirty mode of living that generally prevails. The people seldom wash their clothes, and

never shift them on going to bed. The offals of butchers' stalls are left in the open streets, where they perpetually spread putrefaction and poison in the atmosphere. The sun would in some degree obviate this mischief, by drying them into hardness; but after they accumulate in the streets, they are thrown into the river or the sea, where they not only pollute the water, but, lying just within water-mark, are soaked with that quantity of moisture which is sufficient to keep the putrefactive fermentation in its most active state, and which allows them to disseminate their effluvia in the air. When a mortality takes place among the camels and asses, so indolent is the police, that the carcasses are suffered to lie exposed in the open fields, to the annoyance and danger of the whole country. To want of cleanliness we must chiefly ascribe the power of that scourge of Egypt, and of the whole Turkish empire, the plague.

Elephantiasis and leprosy are frequent diseases in Egypt. Obstructions in the liver and dropsies are still more frequent. Ophthalmia is a disease endemic in the country. The Egyptians seem to have a great degree of strength in the alimentary canal, as they are difficult to be operated on by medicines.

Doses

Doses of an emetic or of a purgative, which would prove highly drastic to an European constitution, pass over their stomachs without effect. SONNINI says, that eight grains of tartar emetic produced no more than a slight retching. There is, however, in some parts of Egypt, an obstinate tendency to diseased action in the intestines in advanced age. SERVAVESI observes, that the old men in Damietta generally die of dysenteries*.

The climate of Egypt proves extremely enervating to strangers. Indeed all hot climates have this effect on the natives of colder ones; an effect, however, which is varied by many nice circumstances in the nature of each climate, and in the previous habits of those who are exposed to it. Among other curious questions on the subject, well worthy of investigation, it might be inquired, how far it is necessary that a man's progenitors, as well as himself, should be natives of a particular climate, or one similar to it, in order that his constitution may be fully adapted to it. It is mentioned by Lord KAIMES, in his Sketches of the History of Man, and by some travellers, that in India, the children of the Dutch, and other Euro-

* See Histoire Medicale de l'Armée d'Orient, par M. DESGENETTES.

peans, though brought there at the earliest age, or born in the country, are generally distinguished by a peculiar feebleness, both of mind and body, which, in the course of two or three generations, instead of diminishing, continues to increase. From this it would appear, that the residence of a great number of successive generations is necessary, to bring men's constitutions round to that state in which they will enjoy good health in a climate very different from that of their ancestors. But on a more extensive investigation of the History of Man, this might perhaps not be found applicable to all changes of climate, either from a low to a high temperature, or the contrary, but depending on a combination of other particularities. In this respect, there is something very remarkable in the climate of Egypt. There are some descriptions of foreigners whose health is not impaired by a residence in that country, who yet become miserably debilitated in their powers of procreation. The Mamelukes, who are chiefly Circassians, are very healthy, and married to healthy women from their own country; but they have very few children that arrive at mature age, and their numbers are only kept up by annual importations of slaves. The Turks, also,

also, who settle in the country, soon dwindle away.

But the climate of Egypt exerted its influence in a more conspicuous manner on the French and British soldiers, by rapidly debilitating their constitutions, and thinning their numbers. Unaccustomed to the heat of such a climate, they felt it, on their first arrival, extremely oppressive. This inconvenience was, indeed, easily surmounted by a little fortitude. It was the subsequent effect of a longer residence in the country, that proved seriously injurious. The constitution gradually declined, became more unfit for exertion, and more open to the attacks of disease. When the head was for a little time uncovered under the rays of the sun, a *coup de soleil*, in a greater or smaller degree, was the general consequence. Where the contagion of the plague prevailed, it found such subjects very susceptible of its influence, and when the exciting causes of fevers, bowel complaints, or ophthalmia, operated, they did not fail to make inroads on the small portion of strength which such constitutions retained. The heat is more intense in Egypt, than in most other countries of the same latitude, on account of those vast deserts of heated sand
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by which it is hemmed in, and the want of those occasional showers by which other countries are refreshed. Hence it becomes hotter and more unhealthy, as we leave the sea-coast and penetrate towards Cairo, where the deserts approach nearer on both sides, and the breezes from the sea, having traversed a considerable extent of country, are deprived of their coolness. But the Saide, which is of a higher latitude, more confined by hot deserts, and equally deprived of rain, is even more healthy than the Delta, both to natives and to foreigners. Whether it is more or less favourable to the propagation of their offspring, is a question on which my information is too confined to enable me to decide.

The diseases which chiefly harassed the French army, were the plague, diarrhœas, dysenteries, ophthalmia, catarrhal and contagious fevers, and scurvy. Ophthalmia was very prevalent in the winter months, and was then ascribed in a great measure to the cold moist air of the night. It also prevailed extensively during the hottest months of summer and autumn. Catarrhal fevers prevailed when the Nile was on the increase, and when it came to its height. During the decline of the inundation, in the latter end of November, and
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in December, these gave place to contagious and intermittent fevers. Diarrhœas and dysenteries were most common in summer and autumn. In Upper Egypt, where the army was in other respects healthy in summer, they still laboured under ophthalmia, diarrhœa, and dysentery, but sometimes only under the two latter diseases. Diseases of the bowels continued in considerable number all the year round. The hospitals always contained in winter several old and relapsed dysenteries. Dysenteries of the chronic kind were the prevailing diseases, on the passage of the troops from Egypt to France.

I shall now consider those causes of disease which operated on the British Army, during the campaign of 1801, in which they were subjected chiefly to the climate of the summer season, when the heat was intense, and the country dry.

In the beginning of March, when we landed, the cold of the nights was very penetrating, and often prevented us from sleeping. During the whole of March, and part of April, we had occasionally a heavy fall of rain, with a strong north-east wind. In the mean time, the heat through the day, though more intense than we experience it in our own country,

try, was moderate, when compared to that of the subsequent months.

The army, during this state of the weather, was very healthy: the only effect of the cold of the night being an occasional rheumatism, or affection of the chest, in constitutions very much predisposed. The troops for some time endured no fatigue, and having the near prospect of active military service, they felt the salubrious influence of that general ardour which occupied their minds, and were secured from the hurtful effects of listlessness or despondency. After the thirteenth of March, the service required hard labour, in entrenching and fortifying the position of the army. Diseases proceeding from debility then appeared, but not in any great number.

After the surrender of the tower of Aboukir, on the 18th, and after the memorable action of the 21st of March, a general hospital for the wounded was established at Aboukir, where they were accommodated in tents. This species of accommodation, where the tents are large and cool, is much superior to that of a house, especially if the wounded patients are numerous. By keeping up a constant ventilation, and occasionally shifting the tent-ground, the hospital gangrene may be in a great measure
pre-

prevented; an evil that destroys many patients whose original wounds would otherwise have speedily healed; but an evil, which no fumigation, and no cleanliness hitherto found practicable in a house appropriated to the purpose of an extensive surgical hospital, is adequate to prevent. In this hospital, the plague afterwards broke out, and proved fatal to several patients, and to some of their medical attendants. As Aboukir is in an open situation, surrounded by sea, except in one direction, and well ventilated by breezes, and as there was no communication whatever with any of the towns or villages of Egypt, this disease could not have been brought at that time from any other part of the country. It must have arisen from some remains of this subtle and obstinate contagion, adhering to the ruins of the village of Aboukir, or to the exuviae of the Turkish soldiers, who, on BONAPARTE'S return from Syria, were on this spot cut to pieces by the French army. I do not know if there was any suspicion that it was received from the tower which the French had evacuated. This contagion was no doubt rendered more active by the effluvia proceeding from the wounds of the patients in hospital.

In the middle of April, diarrhoeas appeared

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in the army in an obstinate form, sometimes with a mixture of those symptoms which shew a tendency to dysentery; but they did not prove fatal (at least in the 30th and 89th regiments), though some of them required two or three weeks for the cure. One case under my care, degenerated into true dysentery, and remained more than six weeks in the hospital. At that time there were a few instances of intermittent fever, but chiefly in persons who had been formerly subject to this disease. There were also some rare instances of typhus.

After this, the army was divided into two parts, one of which went to Rosetta, and after taking fort Julien, marched in the beginning of May, under the immediate command of Lord HUTCHINSON, to Rahmanie, and afterwards to Grand Cairo.

During this march, several instances of the plague occurred in Rosetta, among the soldiers' wives, the sick in hospital, and the men on duty in that town. It continued in a greater or smaller degree till the end of July, and perhaps longer. But it was not allowed to spread, as the patients were insulated with rigorous exactness. A laudable alacrity was, on this occasion, displayed by the medical gentlemen who attended them. So far as I
heard,

heard, this malady never appeared in the main body of the army, either on its march or during encampment.

The army on the Nile was not exposed to any powerful and general cause of disease, excepting the heat of the climate. Their marches were extremely short, and their halting days numerous. Their diet was generally fresh meat, the influence of which will be mentioned afterwards. There was a great want of spirits and wine, articles peculiarly necessary on a march, and during exposure to a heat so exhausting. The troops were repeatedly encouraged with promises, that they should not only for the future receive their regular allowance, but that the deficiency of the past should be made up. These promises it was not found practicable to fulfil, or even for a long time to render the situation of the troops, in this respect, better than before.

No fatigue was endured, except on the 17th of May, by a few regiments* that were sent into the western desert, after a convoy of camels and dromedaries belonging to the French.

* The 2d battalion of the Royals, the 30th, 50th, and 92d.

All the water that these soldiers had access to, was what each man carried in his canteen. The march into the desert was necessarily quick. When the foot regiments were told that the convoy had not only been seen, but had surrendered to a small party of our cavalry in front, the enlivening news made them march still more quickly forward, while prudence should have taught them rather to moderate their exertions. In returning to camp, they were hurried in a manner to which they had not been accustomed, and made none of those short and necessary halts which were regularly ordered in our trifling marches along the Nile. The consequence was, that the line of march was strewed with soldiers who had dropped down with fatigue, and several dated from that day the cause of their death.

There was one circumstance of general operation, which greatly injured the health of the army, and was peculiarly oppressive during the summer solstice, when we were in the environs of Cairo, a more sultry part of Egypt, than any we had yet visited: I mean the kind of tents in which the men were accommodated. A soldier's tent, consisting of a single covering, was in that country, a very inadequate defence from the rays
of

of the sun. Those rays were still powerful within it; and it was seldom possible, for want of trees, to obtain a more complete shade in the heat of the day. The tents were at the same time so constructed, that, excepting at the entrance, they could not be opened for ventilation, otherwise than by raising the part that touched the ground, which admitted an insufferable quantity of sand and dust. Consequently, the people within them were deprived of that little refreshment which the noon breezes produced. If we consider, besides, that the number of twelve, fifteen, and sometimes twenty, were crowded in a tent no more than twelve feet in diameter, and tapering to a point from the bottom, it will appear that, in a country like Egypt, a soldier must find the nature of his accommodation one of his greatest hardships. In his tent, which is close as an oven, the extreme heat and impure air threaten suffocation, and rapidly bring on debility. In such a country, it would be a very great improvement, to provide an army with double tents, like those of the Mamelukes, which, being likewise so constructed as to admit of commodious ventilation, are comfortable and healthy. The additional
c trouble

trouble of carriage, would be a mere trifle, compared with the general comfort that would be produced, the numbers of lives that would be preserved, and the saving that would be made in hospital expences. Had this been done in Egypt, I believe there would have been but little sickness of any kind.

During the march to Cairo, ophthalmia was very prevalent; and though not a fatal disease, it rendered a large proportion of the troops unfit for duty, and deprived some individuals of their sight for ever.

In the mean time, diarrhœas continually increased in number and severity. By the 18th of May, dysenteries were very prevalent. These two diseases continued to occupy our regimental-hospitals till the 6th of July, at which time they decreased, while ophthalmias became more prevalent. Diarrhœa and dysentery were almost the only fatal diseases among us, and they were often very difficult of cure. While the patients were kept in camp, they were still exposed in some measure to the action of that intense heat which first produced the disease, and the powers of life, under circumstances so disadvantageous, gradually yielded. There was, for a long time, a great scarcity of medicines

tics in this part of the army, and almost a total want of coffee, tea, spices, and other articles of diet, requisite for this description of patients.

After the surrender of Cairo, and during the march from that city back to the peninsula of Aboukir, the debility which prevailed among the men, produced daily accessions to the number of the sick. A few of those were cases of diarrhœa; the greatest part of them were slight fevers; the immediate effect of exercise, and the heat of the sun. By taking one or two purgatives, and being allowed a few days of exemption from fatigue, most of them got well. The conveyance by the Nile was extremely convenient for the accommodation of the patients. When we came within three miles of Rosetta, and were about to cross the desert to Etko, we found it necessary to send our patients to Rosetta, to the medical gentlemen of the staff, who, finding most of them very slightly affected, and others seemingly without any ailment, after they had rested from the fatigue which first affected them, sent the greater part of them forward by water, to join their regiments in the camp before Alexandria. But to have obliged such men

to march through the desert, where there was no conveyance for them, and all the indulgence they could have received, was to be allowed to put their muskets and knapsacks on the camels, and trudge forward on foot, would have been a very hazardous procedure. On the following day, the 8th of August, on the march from Etko to the peninsula of Aboukir, the weather being extremely sultry, a private of the 30th regiment fell out of the ranks, and very soon expired, from exhaustion and fatigue. He had been on the sick list on a former occasion, but that morning he made no complaint, nor proposed to avail himself of an opportunity offered, of a conveyance by water.

After the 12th of August, bowel complaints began to re-appear, but not in so dangerous a form as in May and June. They formed the most numerous class of diseases, till the 10th of September, when the first re-embarkation of troops was made, in consequence of the surrender of Alexandria. On the passage to Malta, I found diarrhœas, and relapsed ophthalmias chiefly prevail in His Majesty's ship *le Tigre*, in which I attended a part of the 30th regiment.

This sketch of the medical history of the
campaign

campaign is very imperfect, and may in some points prove erroneous, if applied to the army at large, as I had little opportunity of knowing particularly the state of any regiment, except the 30th and 89th.

It is to be hoped, that some gentleman of the hospital staff, who is possessed of full documents on this subject, will favour the public with an account of it. A view of the influence of different situations on our soldiers, in a country entirely new to them, cannot fail to prove interesting.

CHAP. II.

GENERAL REMARKS ON BOWEL COMPLAINTS.

DISEASES of the bowels have a peculiar claim to the attention of every military surgeon. They commit more constant ravages in the army, than any other diseases. They are common to all climates, and inseparably attached to a campaigning life. They are peculiarly destructive to the soldiers of civilized Europe, when they are taken to a sultry climate, and, from enjoying good accommodations, become subject to the hardships of the camp. In a county-hospital in England, even when diarrhœas and dysenteries are most epidemic, their proportion seldom exceeds one-fourth of the total number of patients, and a proportion so large is never of long continuance. But, in a regimental-hospital abroad, the proportion of these diseases is never under one-fourth. For six months of the year, it amounts generally to one-half, and sometimes to more. Indeed these two bowel complaints are the
only

only standing diseases of the army. When no contagious fevers prevail, our patients for the most part consist entirely of men under diarrhœa or dysentery, excepting ulcers and accidental injuries.

These diseases, besides, are often insidious in their advances. In their earliest stage they are little attended to. They appear to the patient only slight complaints which will easily pass away, and it is not till they prove obstinate, or occasion great pain and debility, that he makes them known. If the proper remedies prove speedily effectual, observers falsely conclude that the disease is attended with no danger, and when it occurs in themselves, they treat it with indifference. This is often the case in the army, in the beginning of a summer campaign, on the first appearance of bowel disorders; but those disorders become gradually more serious, and in a short time prove fatal to numbers. An alarm then arises when the season is too far gone, when men's constitutions are so much broken by slight, but long continued ailments, that all their care will not prevent an attack of a bowel disorder, and when the attack is made, medical assistance can frequently give no more than an uncer-

tain and partial relief. Indeed, the unreasonable panic with which people of delicate constitutions are then siezed, often induces that disease which is the object of it, and proves as unfavourable to a recovery as the indifference which formerly prevailed.

But when properly attended to at first, few diseases more readily yield to medical treatment than those of the bowels. I have no doubt, on the most moderate calculation, that if all justice were done to them, by the patient himself, the surgeon, and the purveyors, four-fifths of the number that now fall victims to diseases, might be saved.

Such is the general thoughtlessness of private soldiers, that we can seldom expect from a patient in the army, that nice attention to his own health, which bowel diseases so particularly require.

Nevertheless, the surgeon's attention must be unremitting. These diseases change their form both suddenly and frequently, and require corresponding changes of treatment. The strength, too, is often so much reduced, that our medicines will not only be useless, but dangerous, unless every step we take be dictated by mature study, and accompanied with the utmost caution. In short, no class of
diseases

diseases affords more scope for all the acuteness of our discrimination, and none claims more loudly the vigilant attention of a humane and patient mind.

Our efforts will still often fail, unless seconded on the part of the purveyors by a provision of every article requisite for the accommodation, and for the dietetic regimen of the patient.

There are five principal diseases of the intestinal canal; diarrhœa, dysentery, cholera, colica, and enteritis. The first two are by far the most prevailing, and were the only diseases of that organ, that I had occasion to treat in any considerable number in Egypt.

CHAP. III.

OBSERVATIONS ON DIARRHŒA, AS IT APPEARED
IN THE CAMPAIGN IN EGYPT, IN 1801.

SECT. I.

Description of the Disease.

THE diarrhœa in Egypt, did not differ in any thing that I could observe, from the same disease as we find it in other countries, and as it is described in books of medicine.

Though its proper character is comprized in one circumstance, "frequent and liquid stools," its forms vary, both in the degree of this original symptom, and in the collateral affections with which it is occasionally attended. Often it is accompanied with tormina, and sometimes with sickness; but, where these affections become violent or obstinate, we are to consider the disease as degenerating into dysentery.

It is distinguished from cholera, by the absence of that violent bilious vomiting, which

in

in cholera is the first symptom ; by the absence of cramps in the legs and arms ; by the natural state of the pulse, and by the general mildness of its character. From dysentery, it is distinguished by the copious evacuation of only liquid feculent matter, and the absence of straining and tenesmus.

It is a disease very incident to children, but does not prove so dangerous to them as to adults. Their strength is less rapidly impaired by it, and they are more easily cured.

But though rarer in civil life among adults than among children, it is extremely prevalent among persons of all ages in the army, particularly on active service. It often prevails at the same time with dysentery, and these two together, have on some occasions spread great devastation. In the Egyptian campaign, if we escaped the plague, the only troublesome diseases that appeared amongst us to any extent, were ophthalmia, diarrhœa, and dysentery.

The diarrhœa appeared in every variety of form. Its attack was generally gradual, but sometimes it was sudden. Sometimes the egesta were completely natural, excepting in point of consistence ; at other times, they were crude and indigested. They were often

ten mixed with mucous matter, and were at times of a greenish colour. They assumed every variety of appearance, from being the most natural, till they approached to those of dysentery. In this last case, the disease itself became dysenteric. The gradations from diarrhœa to dysentery were, upon the whole, so imperceptible, that it was not easy to draw a precise line of distinction betwixt them.

SECT. II.

Causes of Diarrhœa.

WHEN diarrhœa is produced by any exciting cause of disease, there exists for the most part some previous tendency in the constitution, which either lays it open to the influence of exciting causes, or so directs their operation as to form this particular disease. Such a tendency may exist from our earliest childhood, though for want of an exciting cause, it may never be observed. At other times it arises from a train of circumstances in the history of the constitution; from particular changes

changes of diet, or of the mode in which the body has been managed; circumstances so minute, that before their collected consequences become palpable, no acuteness can discover their mischievous tendency.

But a pre-disposition to this disease is, in many cases, formed by causes too evident to pass unobserved. It is sometimes the effect of that debility which follows acute diseases, especially remittent and intermittent fevers. Sometimes it is brought on by a long habit of excessive drinking.

The most conspicuous pre-disposing cause, is a high temperature of the atmosphere. It is well known that the prevalence of diarrhœas in this country is, for the most part, the effect of unusually warm weather. But the operation of this cause is more abundantly felt in the influence of hot climates on the natives of Great Britain, and other temperate countries.

A certain degree of heat is a stimulant necessary to the sound action of the system, and even a strong heat, often proves salutary as an occasional stimulant. But a strong heat constantly applied, exhausts that principle of excitability which is the basis of animal life. A morbid lassitude, called, by Dr.

BROWN,

BROWN, indirect debility, is the consequence. The precise degree of heat which may be borne with impunity, is not in all cases the same. It depends on the early and continued habits of the individual. The natives of hot climates feel from their heat no serious inconvenience. But the natives of temperate countries, on going to such climates, have to encounter in the heat, a serious enemy to health. In Egypt, it sometimes produced the sudden effect of a *coup de soleil*; but it more frequently overpowered the constitution by gradual advances, producing general languor, heaviness, and dull pain in the head, with loss of appetite. A man formerly plump and vigorous, became, without any particular complaint, sensibly emaciated, and so feeble, that the smallest exercise exhausted him. In this state, the disease which was at first general and unformed, most frequently settled in the bowels, in the form of diarrhœa, or of dysentery, especially when any of the usual exciting causes of these diseases, in the slightest manner occurred.

Fatigue rapidly accelerated the effects of the climate. The account given by BRUANT, a French physician, of the state of health in the month Fructidor of the year 7 (that is, from

from the 18th of August to the 16th of September 1799), after stating, in general, that diarrhœas and dysenteries, though prevalent, did not commit great ravages, mentions that the corps which suffered most, was that commanded by General DUGUA at Mansoura, which had endured peculiar hardships in pursuing the enemy into the desert, where they were exposed to a burning sun, and were in some degree deprived of the necessaries of life*.

Among the pre-disposing causes of diarrhœa which operated on the British Army in 1801, it is proper to mention change of diet. When at sea, where some of the troops had been for a very long time, they were accustomed to salt provisions, and had a daily allowance of rum or wine. For about a fortnight after they landed, the mode of living was the same; but afterwards they often lived on fresh mutton and buffalo-beef, which articles were, from their novelty, greedily indulged in by some individuals. Such a change will often of itself produce diarrhœa. The same effect was farther promoted by the want of vegetables, and some-

* See *Histoire Medicale de l'Armée d'Orient*, par le Medecin en Chef R. DESGENETTES.

times of salt. If to this we add, that the want of wine and rum in the division of the army on the Nile, must have relaxed the tone of the intestines, we shall not wonder that in such a climate diarrhœa was a prevailing disease*.

I now proceed to mention the exciting causes.

1. Of these, the application of cold is the most frequent. Cold climates, however, do not produce the disease more readily than warm. Indeed, the balance of salubrity, with respect to the natives of temperate countries, is greatly in favour of the former. It is not the degree of cold, so much as the mode of its application, that produces disease.

The partial application of cold while the body is at rest, always proves dangerous. If a current of air blow on a man during the night, while he is covered only with his body-clothes, or if, even with the best accommodations, his head or arms are uncovered, and

* Was the division of the army which remained before Alexandria subjected to the same privation? and was diarrhœa as prevalent there as in the division that marched to Cairo? These questions can be answered by the medical gentlemen of the staff, and by those regimental surgeons who remained before Alexandria.

exposed to such a current, he seldom escapes some ailment. He is either seized with rheumatism in the vicinity of the parts exposed, with head-ach, with catarrh, perhaps with inflammation of the lungs (if his breast were bare), or very commonly with diarrhœa.

A sudden transition from heat to cold, is a well-known cause of many diseases, and of this among the rest. Yet it is not every such transition that is hurtful. In Russia, where the cold is much more intense than any experienced in England, it is a common thing to go out of the hottest baths into the open air, and rub the whole body over with snow, without the smallest injury. But when, from a moderate warmth to which we have been some time accustomed, a transition is made to a degree of cold not very intense, it becomes more dangerous. If a man go out of a warm room where he has remained for a whole day, and sit down in the open air in the cool of the evening, or if, after heating exercise, he sit down to cool himself, throwing open his clothes, he very often experiences either a high inflammatory affection of some one of the viscera, or a violent diarrhœa.

Cold is particularly dangerous when accompanied with moisture. A man will be seized

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with diarrhœa, by sitting down without changing his clothes, particularly his stockings, after being drenched in rain. Sleeping in a damp room will also produce this effect. From the same cause, we find the inhabitants of low wet countries frequently subject to diarrhœa. In hot climates, the profuse perspiration brought out on the surface of the body, often produces a chillness, which still more commonly determines morbid action to the bowels, and renders the disease more prevalent than in temperate countries. The morbid action ensuing on moisture, arises entirely from the cold produced in the process of evaporation. The heat of the body being absorbed by the water, and passing into the latent state, while it converts the water into an aerial fluid, produces a sense of cold. Hence it is not confined to those cases in which the moisture is in contact with the skin. A wet surtout worn above the driest clothes, especially if these are thin, will endanger health as much as a wet shirt. The bad effects of cold are then indeed produced with greater certainty, because the external part of our clothing has the freest evaporation for its moisture, and the cold which that evaporation produces quickly reaches the body. It is common on
such

such occasions, to attribute the effect to a degree of dampness extending to the skin, and indeed the sensation itself produces some deception; but the real dampness is wholly external. For this reason, the effects of the matter of perspiration, or of any other moisture of the skin, are greatly obviated by wearing a flannel shirt. A damp coldness is peculiarly partial and insidious. When a person in wet clothes changes his posture in the most trifling degree, the clothes bearing more loosely on some parts of the body than before, he will be seized with chillness in a part which had felt comfortably warm. This mode of applying cold, is therefore more dangerous than any other.

There is often a close connexion among the various diseases produced by cold. For example, it sometimes produces diarrhœa and rheumatism together. More frequently, it first produces the one disease, and when that retires, the other succeeds. A rheumatism in the arm or back, often alternates with diarrhœa and pain in the bowels. It is also very common for pains in the bowels sensibly to move backwards, and settle in the muscles of the loins, in the form of lumbago. These facts evince that a resemblance exists betwixt the two diseases, or

rather, that they differ only in the part affected. This is more particularly to be remarked in such forms of these diseases as owe their origin to cold. When rheumatism is the effect of overstrained muscular exertion, or when diarrhœa is the effect of acrimonious or spoiled food, they do not alternate in the same manner. The disease is not then connected with a general diathesis in the animal system. It is more properly local in its nature, and therefore less easily shifted to different parts of the body. I have observed in some cases a similar connexion betwixt bowel complaints and pneumonia, especially where the constitution has been impaired by a former dysentery. When the system was exposed, in a susceptible state, to the effects of cold, symptoms of an incipient inflammation in the lungs were accompanied with uneasiness in the bowels, and, where the disease was not stopped, it terminated sometimes in pneumonia, sometimes in diarrhœa. In Egypt, bowel complaints were observed by the medical gentlemen, both in the French service and ours, to alternate remarkably with ophthalmia. This last disease, though it did not in general yield to the administration of purgatives, often disappeared on the patient being attacked with diarrhœa.

And

And on the other hand, it frequently attacked a patient when a diarrhœa or a dysentery was cured. Diseases of the bowels are also well known to alternate with the different species of lichen, and other cutaneous diseases*.

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* The alternation of rheumatism with bowel diseases, is particularly insisted on by Dr. AKENSIDE, who considers dysentery itself as nothing more than a rheumatism of the intestines. Though this is not just as a general account of dysentery, it is often the case, both with that disease and diarrhœa. On the march up the Nile, in May 1801, when I began to feel the debilitating effects of the climate, I found myself one morning, on rising from sleep, having lain on the hard ground, and thinly covered, attacked with a severe lumbago. For some days, it was with difficulty that I could stir, after remaining for a little at rest ; and the motion which the service required, though not considerable, was almost insupportable. When this complaint was removed, symptoms of a disease in the large intestines immediately appeared. These promised at first to yield to the simplest remedies, but they frequently relapsed, and were at last followed by a serious train of diarrhœal and dysenteric complaints. I called to my recollection an instance of the same kind which I had met with in Minorca, and afterwards I observed several others in Egypt.

Rheumatism and pneumonia are generally considered as winter diseases ; diarrhœa and dysentery as summer diseases ; but the debility produced by the heat of summer in a tropical climate, often pre-disposes the constitution to rheumatism and other inflammatory complaints, as well as

It has been a prevailing idea among medical men, that cold produces diarrhœa, only by the check which it gives to perspiration, forcing inward on the bowels, those humours which in health have free issue by the exhalant vessels of the skin. But that account of the *modus operandi*, savours too much of the humoral pathology, now deservedly exploded. The vascular system, especially that of the absorbents, is not mathematically nice in the quantity of humours to which it gives passage without inducing disease. A considerable quantity of water received in a short time into the system, is readily taken up by the absorbents, and easily retained (as is always the case, when no increase of perspiration follows), without producing any disease, as a consequence of the increased mechanical distention of those vessels. Diseases are to be considered as primarily existing in the organs of sensation, ramified through the body. The noxious power of cold is to be referred to its action on the sensible fibres

to diarrhœa. Such complaints are particularly apt to appear, when a man in this debilitated state is, for any length of time, exposed to cold.

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of the skin, and to the sympathy of these fibres with those of the intestinal canal.

The intimate nature of the effect thus produced on the living fibres, in a great measure eludes our research. It is not enough to say, that the removal of the healthy stimulus of heat produces a diminished action of the system, which constitutes the disease. The animal economy is characterized by a copious, though regular variety of phenomena, both in health and disease. Increase and diminution of excitement are far from being, as some have affirmed, the only changes that take place in it. The sensations and motions of which the system, as a whole, and also its various parts, are capable, are too numerous for description. The organs of taste and smell vary their sensations with every new object applied to them. The sensations in all the other parts of the body, receive in the same manner a variety of modifications, according to the kind of stimulants applied, the manner of their application, and the order in which they succeed each other. Disease does not consist so much in a particular *degree*, as in a depraved *kind* of action. It is at one time produced by a particular stimulant, which from its own nature, or from the

unfavourable moment at which it is applied, gives a wrong direction to the motions of the living fibres; at another time, by the removal of a stimulant which is necessary to health, or which, from the latest habits of the patient, was necessary at that moment in which it was withdrawn: at another time, disease is produced by the co-existence of two or more sensations, which, not harmonizing together, end in a general depraved motion of the animal organs. The varieties of sensation through the body, constitute the rich enjoyments of health. The various forms of depraved sensation, form the varieties of our diseases. After the fibres of the skin have been kept in a state of gentle excitement, by unusual heat, they are peculiarly sensible to any diminution of temperature, especially if partially or insidiously applied. The regular uniformity of excitement in the system is then disturbed, and from the incongruity of the motions of one part with those of another, there results a third set of motions of a vicious nature, which, becoming permanent, constitutes the essence of that diarrhœa, or other disease, which ensues.

2. Another cause of diarrhœa, is the eating

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or drinking of acrimonious or putrid substances. The drinking of any bitter liquid by accident, such as beer overcharged with hops, or stale porter, will often purge as violently as a dose of aloes taken for the purpose. Under this head we may reckon spoiled fruit, and all kinds of bad or mouldy victuals, particularly rancid meat. These articles operate as vicious stimulants on the intestinal canal. A considerable quantity of meat taken at a time, if much spoiled, will produce immediate nausea, vomiting and looseness. Sometimes the habitual use of food which is only a little injured, will produce, in the end, a diarrhœa, if not a dysentery.

3. This disease is also produced by the inhalation of putrid effluvia. These effluvia in a concentrated state, for the most part occasion strong nausea with vomiting. And almost any substance, noxious, or medicinal, that produces vomiting, may by a different mode of administration, be made to excite the action of the bowels. Hence, diarrhœa is frequently the effect of a person's passing the putrid offals of butchers' stalls, especially if he do not immediately retire from the place. From this cause, as well as from the dampness of the air, the inhabitants of marshy countries are subject

ject to this disease. Where there is much stagnant water, abounding with putrid insects and vegetables, the air partakes of the noxious impregnation. Hence bowel complaints are so common in the campaigns of Flanders. On this account, it is of importance on active military service, to change the camp-ground from time to time, to bury all offals deep in the earth, to keep the necessaries in the best order, and to use every other precaution for preserving a pure and salubrious air.

4. Intemperance in eating or drinking is often the cause of this disease. Strong meat, such as pork or fat mutton, taken in large quantities, especially without salt or seasoning, will often produce immediate disorder in the stomach and bowels. Many people, indeed, indulge with seeming impunity, in the intemperate use of the luxuries of the table: the constitution has, in such cases, been so reconciled by habit, that no immediate bad consequences are felt. Health is only undermined by slow degrees. But where no such habit has been acquired, an occasional surfeit will frequently generate immediate looseness, with nausea and vomiting; and, if the constitution has been greatly pre-disposed, or if such causes of diarrhœa are three or four times repeated, the

the disease will become habitual. The case is the same with the excessive use of inebriating liquors.

Under this head may be reckoned fruit eaten to excess. On the tendency of the acido-dulces fruits, the opinions of physicians are at considerable variance*. This is to be imputed to their precipitance in drawing general conclusions from too limited a collection of facts. In some instances, where fruits are eaten to excess (to which Europeans in a hot climate feel strong temptation, especially on their first arrival), they produce an alarming train of bowel disorders. This impresses the minds of the sufferers and of their medical attendants with the most unfavourable opinion of their qualities. And it is to be observed, that those who have been once injured by them, are afterwards in greater danger than others of suffering by the most trifling indulgence. But, when taken in due moderation, these fruits are certainly of the utmost benefit to health. Their flavour refreshes and strengthens the stomach, and their acidity gives a salutary impulse to the motion of the bowels. Even where there is a tendency to diarrhœa or dysentery, a little fruit

* See CLEGHORN on the diseases of Minorca, chap. iii. p. 194, fourth edition.

may,

may, in a certain moderate state of irritability of the bowels, be taken with advantage. Those fruits, indeed, differ among themselves in the degree of safety with which they may be taken. Cucumbers and melons eaten to excess, are more dangerous than grapes. These are more dangerous than apples, peaches, and apricots. Pomegranates are safer than any of these. Oranges are in general still safer, and lemons, where there is no tendency to acidity in the stomach, are so far from being dangerous, that they are often an effectual medicine for restoring the healthy action of the bowels. Fruits often become hurtful by being eaten unripe, or, what is worse, spoiled with age. Grapes, peaches, apricots, and other soft fruits with thin skins, are the most apt to spoil, and most frequently bought in an unwholesome state. But the acido-dulces fruits, though ripe and good, when eaten to excess, often bring on diseases. There is only this difference, that when they are not in proper condition, the injurious effect is produced by a smaller quantity. As for the oleaginous fruits, such as the various species of nuts, when they prove hurtful, it proceeds from the heavy sensation they produce in the stomach; a sensation nearly allied to the nauséa felt after eating animal food.

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But we find, on this subject, men's tastes and acquired habits so diversified, that every person must make choice of the fruits he eats, from his personal experience. It is a common thing, in table conversation, to discuss the comparative merits of different fruits, as well as of other articles of diet; and to ask any medical man who is present, his opinion of their tendency on the constitution. But it is seldom that an answer can be given to such questions, that will admit of universal application. Prompt and decisive replies are either the offspring of conceited ignorance, or are thrown out carelessly to fill up conversation, and satisfy the company at the time, while we are sensible that the opinion we give has no weight in our serious practice. I have heard it on such an occasion confidently asserted, that the most abundant use of water-melons never can do harm. Many who have eaten them freely in warm climates for a number of years, are ready to attest their innocence, and therefore treat the fears of others with ridicule. But I have known several cases in which this fruit has produced the most distressing complaints of the bowels. In these cases, a doubt could not exist of the cause of the complaint; because it commenced with a heavy sensation in the
stomach,

stomach, bearing a near resemblance to the taste of the fruit that had been eaten : a reluctance to this fruit was one attendant symptom of the disease ; and if at any time, during convalescence, the patient was in the smallest degree betrayed into the farther use of water-melons, it was followed by a marked exacerbation of all his complaints.

In the march to Cairo, when bowel complaints were most prevalent, the only fruits we had access to were cucumbers, melons, and apricots, with a few peaches. The apricots were often unripe, and sometimes they were soft and spoiled. The cucumbers and melons were seldom ripe, and were eaten by far too freely. These articles proved frequently exciting causes of diarrhœa. Their pernicious qualities might have been corrected by seasoning them with vinegar and pepper, particularly the latter. Every French soldier, I believe, kept a box of spices in his pocket. The same regulation among our troops would have more influence on the preservation of health in a warm climate, than such abundant supplies of animal food, without which an Englishman too often conceives himself starved.

5. The drinking of cold water in immoderate quantities, was often an exciting cause of diarrhœa.

arrhœa. When the constitution was vigorous, indeed, it did not immediately produce this effect; and in such cases, the constant habit of drinking it largely might rather be considered as a pre-disposing cause of disease. By the direction of DESGENETTES, physician-general to the French army*, the soldiers were cautioned, in public orders, against the free use of water, especially after fatigue; and it was recommended before drinking, to rinse the mouth, and to dip the hands in the water. The Egyptians, dreading fluxes as well as other bad consequences from an excess in this particular, often restrain their inclination to drink when thirsty. When they go to refresh themselves in the river, they drink only small quantities of the water, taking it up in the palm of the hand, and often content themselves with taking it repeatedly in their mouths without swallowing.

When the constitution was much reduced by the heat of the climate, and other causes of debility, with a morbid sensibility in the stomach and bowels, the drinking of cold water, especially after exercise, instead of giving that refreshment, for which it is so generally calcu-

* See Histoire Medicale de l'armée d'Orient.

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lated, had an immediate noxious operation. It produced uneasy sensations through the whole intestinal canal, which were accompanied with looseness, and sometimes followed by tenesmus and dysentery.

When a man in health, in a temperate climate, is accidentally affected with languor in the stomach, and urgent thirst, a draught of cold water not only extinguishes his thirst, but restores the stomach to its usual vigour: because this organ, notwithstanding the languid sensations of the moment, still possesses that *vis vitæ*, that capability of action, which enables it to undergo the change with safety and advantage. When the water cools it, its own re-action produces a salubrious warmth. Its pleasurable sensations are restored, and its functions re-animated. Even in hot countries, such as Italy, Sicily, and Malta, ices are constantly used, especially in summer. They are never, indeed, swallowed in large mouthfuls, because they do not admit of it, but are received gradually into the stomach, and their general effect is refreshing and salutary. But in that state in which the whole constitution, as well as the stomach, has been more seriously relaxed, and a strong pre-disposition to bowel-diseases has taken place, the power of the

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the living fibres proves on the application of cold to the internal surface of the stomach, inadequate to the re-production of the heat that is lost. The organ is then subjected to those raw sensations which are the usual effects of cold. (These sensations are the same that are felt in the velum pendulum palati and the uvula during the act of inspiration, in some cases of catarrh, and on the first attack of cynanche tonsillaris). The whole canal partakes of the same sensations. It is deprived of that tone which made it act with uniformity and energy. Its fibres acquire an individual morbid activity which is not under the direction of the general powers of the constitution, is liable to increase on every hurtful application, and which forms of itself the essence (or, as some express it, the proximate cause) of diarrhœa. From the delicate sensibility of the whole intestinal canal, morbid sensations in that part are particularly dangerous. Even when mild in themselves, they produce so serious a change in the system, that it is in danger of running into an habitual affection, unless it be early obviated by diligent nursing, as well as by good medical treatment.

The danger of drinking cold water in that

state of the system, was most striking when a copious draught was quickly taken after extraordinary heat and fatigue. An acute pain was instantly produced in the stomach, and rapidly extended through the rest of the body, which threatened to overpower the whole vigour of the frame*. This pain I have more than once experienced, and nothing could be, for the moment, more excruciating or alarming. When the constitution was weak, it was necessary for a man to form a decided resolution to abstain from such draughts, however much exhausted by thirst, till by frequent efforts he became able to endure the privation with little inconvenience. A little spirits, indeed, mixed with the water, generally prevented danger. The stimulant action of the spirits obviated the sedative influence of the cold water. A mixture of water and spirits relieved the languor of a delicate person, when a draught of water by itself might have killed him. But when spirits

* A surgeon of the Navy died at Marmorice, of a short illness, contracted by taking a draught of cold water in a hot state of body. Perhaps other similar instances occurred in the army, both in that country and in Egypt, though, from the confined circle in which I moved, I had no opportunity to hear of them.

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were wanting, as they sometimes were when most necessary, some delicate persons, to keep their bowels healthy, were obliged either to abstain from cold water, or to take it only drop by drop. It proved safest immediately after meals.

Worms in the bowels are sometimes numbered among the causes of diarrhœa. But before worms can breed, some defect must exist, either in the gastric juice, which allows the ingesta to remain in a crude state, or in the bile, preventing it from forming the ingesta into a proper chyme; or there must be a relaxation of the mouths of the lacteals, in consequence of which, those organs, instead of absorbing the chyle, leave it to become noxious by a spontaneous change in its chemical qualities. Some previous disorder is necessary to the generation of worms in the intestinal canal. When once generated, however; they may probably, by the preternatural irritation they produce, give the form of diarrhœa to an internal disease, which otherwise would have assumed a different appearance; so that, though they cannot be reckoned a primary cause, they may be considered as forming a conspicuous part of the early history of some diarrhœas.

But diarrhœa often made its appearance when no exciting cause could be observed. The constitution was so much exhausted by the heat of the climate, and other pre-disposing causes, that though every care was taken that circumstances would allow, to avoid the exciting causes of disease, it was impossible to prevent an attack of diarrhœa. When the attack was made, the same heat of the atmosphere heightened the disease, and retarded the cure.

An army in garrison, being more shaded from the sun, would not have suffered so much as we did, who were in camp. Many patients, who daily became more feeble and emaciated on the banks of the Nile, under obstinate diseases of the bowels, were sent down in boats to Rosetta, and found the transition from a tent to a well-covered boat, and still more, to a comfortable house, immediately followed by the happiest effects. The chief cause of the disease ceasing to act, the constitution recovered its strength, the languor and relaxation of the bowels went off, their morbid irritability was corrected, and that regular and firm action which characterizes a state of health was restored.

SECT. III.

Cure of Diarrhœa.

IN treating diarrhœa in its most simple state, a physician generally succeeds best, when he uses at once those medicines that will render the stools less liquid, and reduce their number*. Some insist, that before taking any direct measures for accomplishing this object, we ought always to administer a laxative, to clear the bowels of that acrid matter which is the radical cause of disease. But

* I employ this circuitous language on account of the ambiguity of the word astringent. Sometimes it is used to express the power of contracting the dead animal fibre; at other times, that of contracting the mouths of the exhalant vessels of wounded surfaces; and at other times, the property of producing constipation in the bowels. I believe it was once taken for granted, that these properties are inseparably connected; but this idea is overturned by an accurate attention to the phenomena. Where I use afterwards the term astringent, I mean to express by it, the property of constipating the bowels, as no other can entitle an internal medicine to this distinctive appellation.

this idea appears to me to be founded in mistake. When diarrhœa is produced by cold and debility, we are to consider any alteration that may take place in the contents of the intestines, not as an original cause, but as a subsequent effect of the disease. Even with respect to those acrid ingesta which sometimes give rise to diarrhœa, or those acrimonious substances which are formed in consequence of the disease, and which, if retained, would no doubt tend to confirm and increase it; the action of the bowels, without the aid of any purgative, soon carries them off. The subsequent stools are solely furnished by the new ingesta, and by the exhalation of fresh lymph, from the internal surface of the alimentary canal.

The case is, indeed, totally different with diarrhœas that partake of the nature of dysentery; for example, those that are attended with any degree of griping, or in which the stools are of unequal consistence. There, a purgative administered in the first instance, is always highly useful for relieving the pains; and if we neglect it, and employ astringent medicines at the very beginning, our treatment only promotes the disease. This effect of purgatives is not owing, however, to
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the evacuation of an acrid substance, but to the change of action they produce in the sentient fibres which were subjected to pain, in the same manner as the urethra and other parts of the body are often relieved from inflammation and pain by the excitement of that species of action which is attended with a copious discharge. As for those cases in which some parts of the feces are hardened, and the action of the intestines is partial, I number them not among diarrhœas but dysenteries. These, of course, require purgatives for the express purpose of evacuation. When diarrhœa occurs in its most simple state, that is, when looseness is the only symptom, astringent medicines are of themselves adequate to the cure : such are opium, catechu, kino, alum, ipecacuana, sulphate of zinc, creta, and hæmatoxyllum.

The mode of administering opium, which I generally prefer, is, to give ten drops of the tincture every hour, or after every other stool. But particular circumstances may render it proper to give it in a different manner. For instance, if the patient complain of want of sleep, it will be requisite to give a larger draught of the tincture, or two grains of the extract

in the evening, that it may produce the double effect of an astringent and a narcotic.

Catechu may be given, either in the form of bolus or infusion, to the quantity of half a drachm, two scruples, or more, in the day, according to the severity and obstinacy of the disease. I prefer the infusion, because medicines conveyed in a liquid form produce the most decided as well as the most speedy effect. A gum or extract, exhibited in a solid form, must in the first place be gradually dissolved by the juices of the stomach, and its effect being thus felt by degrees, the stomach may become so accustomed to the sensations which it gives, as to be less sensible to its influence. Besides, the action of the bowels in a violent diarrhœa, may carry off a solid substance before it produces its effect. But, though I wish an astringent to produce a speedy effect, I do not mean that it is a desirable object to put a sudden stop to a violent diarrhœa. This, by thwarting too rudely the action of the system, might induce a worse disease. The French physicians in Egypt considered the blundering attempts which their soldiers made to cure diarrhœa by a decoction of pomegranate skins, as one occasional cause of dysentery. This is well known to be also a frequent

quent effect of opiates injudiciously administered. Our medicines should first gently moderate, and afterwards fully correct the action of the bowels; and the sooner this operation commences, it is so much the better.

Kino differs very little in its effect from catechu, and is to be given nearly in the same manner, but in smaller quantity, on account of its greater power.

Alum should be given in divided doses, at the rate of one drachm in twenty-four hours, dissolved in eight ounces of water, with a little tincture of cinnamon, or some other aromatic, to render it more agreeable to the taste. Half an ounce or more of this mixture is to be taken for a dose. If this do not prove sufficient, two drachms of alum given next day will often be effectual. But we must not push the quantity too far. Six drachms given even to a man in health, instead of proving astringent, will operate as a violent purgative.

Ipecacuana, as an astringent, is to be given in doses of one or two grains, repeated three times in the day. It is, however, inconvenient to administer this medicine by itself, as we cannot, without a previous acquaintance with our patient's constitution, determine
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the proper dose. By giving too little, we may produce no effect at all, or else, by giving too much, we may purge or vomit, where such effects are not wished for. It is therefore much better to give it in conjunction with opium. Small doses (for example, eight or ten grains) of the compound powder of ipecacuana, repeated two or three times in the day, prove a very efficacious remedy, and one in which we can seldom err.

Sulphate of zinc is an astringent, frequently used in doses of one grain, either in the form of solution, or of pill, repeated four times in the day. It is better to administer it in pill than in solution, as it is then less apt to operate by vomiting, in cases where vomiting is not required. For the same reason, it should always be accompanied with opium.

Chalk made into a liquid mixture with mucilage, often proves highly beneficial in diarrhoea. It is not only an astringent in its immediate effect on the intestinal fibres, but is useful as an absorbent, by its chemical property disposing it to neutralize those acids, which, in cases of indigestion, are formed in the stomach.

Extract of hæmatoxyllum is praised by some as a good astringent, and condemned by others.

others. The dose is ten or fifteen grains, dissolved in water, every three or four hours. My experience in it is not very great, as I have never given it alone. When carried to warm climates, it spoils unless it be first hardened by a moderate heat, and afterwards kept close up from the influence of the atmosphere.

In the class of astringents we must also reckon rhubarb. When given to open the bowels, its purgative effect is observed to be followed by constipation. If it be taken in small doses, or if the root be chewed in small quantities from time to time, it will produce an astringent effect in the first instance. At the same time, it possesses a power similar to that of aromatics in expelling wind, and obviating uneasiness in the abdomen. It used formerly to be given in conjunction with opium : at present, it is fashionable to combine it in small doses with ipecacuana.

These astringents have more certain success when accompanied with opiates : opium seldom fails to check diarrhœa, and a small quantity of it disposes the stomach and bowels to be affected with greater certainty by other astringents.

In other respects, however, it is perhaps best to give astringent medicines in the simplest

plest possible form, preferring one of them with opium, to three or four in a mixture: because, when such a mixture happens to prove inert, it will be difficult to discover which ingredient the constitution resists. If, in that case, we repeat the same mixture in larger quantities, we may run the risk of forcing on the stomach more than it can bear, and at the same time failing in our object. But, when we use only one article at a time, our way is clear. As soon as this decidedly fails, we can lay it aside. Mixtures of astringents ought only to be used when we find by experience that they possess greater powers than simpler prescriptions.

When an astringent medicine produces no favourable alteration in twenty-four hours, we must, on the following day, considerably augment the dose, unless it be one that will not admit of that practice. If it still fail, we must have recourse to another. As an astringent soon shews whether or not it has any efficacy, there is no occasion to delay changing it where it fails. Delays will be attended with risk, for the disease often takes a rapid and dangerous course.

No one of those astringents has been found remarkably preferable to the rest. They are
all

all of them often effectual, and all of them are liable to fail. For my own part, I always succeeded in checking a diarrhœa by opium, chalk, Dover's powder, or alum. I saw sulphate of zinc also given with the best effect, though I did not employ it myself. As for kino, catechu, and the extract of hæmatoxy-lum, regimental chests were not furnished with them. It would, however, be of great advantage to be always provided with as great a variety of astringent medicines as possible. Amidst the numerous diarrhœas that occur in the army, we now and then meet with one peculiarly obstinate, that resists almost all our prescriptions. A regimental surgeon should not expend any one of his astringent medicines too soon before the others, but preserve a quantity of each as a resource for such obstinate cases.

Diaphoretics are often useful for promoting the cure of diarrhœa. The slight glow which their stimulant influence produces over the surface, occupies the sensations of the patient in an agreeable manner. It thus obviates uneasiness in the abdomen, and, by changing the whole action of the system, prevents the inconvenience that might attend those changes in the bowels which other medicines produce.

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In all cases of diarrhœa, it is of the utmost importance to keep the patient in a proper degree of warmth. To give medicines without attending to this precaution, is only throwing them away. When the body is exposed to cold, in the same manner as in health, it is subjected to frequent chilly tremors: those unpleasant sensations in the abdomen which attend diarrhœa are increased; the morbid diathesis is more confirmed, and the strength of the system rapidly impaired. The patient should always be ordered to wear flannel next his skin, and be prohibited from exposing himself to the evening air. In mild cases, an early attention to this circumstance will sometimes of itself effect a cure. In the worst forms of the disease, warmth brings the body to that comfortable state which allows astringent medicines to produce a pleasing and undisturbed effect. The soldiers of Egypt were very properly furnished with flannel shirts. But some were so imprudent as to lose or destroy them, and, in a situation in which it was impossible to procure others, such individuals, if seized with diarrhœa, suffered the bad consequences of that privation, in a much more tedious and dangerous illness. In every campaign, a man who values his health ought to make it an
invariable

invariable rule to carry flannel along with him.

When the diarrhœa is removed, a degree of debility generally remains, which is to be obviated by tonic medicines, such as Peruvian bark, Angustura, and chalybeates. One ounce of a strong infusion of colomba, taken two or three times in the day, is a very efficacious medicine for restoring the strength of the bowels, and the powers of digestion.

When a degree of faintness is felt about the precordia, along with a sensation of languor in the abdomen, camphor, either in bolus or liquid mixture, proves one of the most effectual tonics for obviating that species of debility, and for giving a healthy feeling to the internal parts. Indeed camphor with opium, is often the best remedy we can employ against old diarrhœas when they become chronic and difficult of cure. It promotes the efficacy of astringents, and, when accompanied with warm clothing, will often supersede the necessity of any other medicine.

This disease is sometimes attended with a few symptomatic complaints which are worthy of our notice. But, as the same complaints occur in dysentery, in a more serious manner,
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the discussion of them will come more properly under that disease.

I now conclude my observations on diarrhœa with remarking, that though this disease, taken in time, soon yields to medical treatment, the patient ought not, on his recovery, to indulge in security. A man who has once laboured under it, is peculiarly liable, while he remains in a hot country, to a return of the disease on the application of any exciting cause; and after frequent attacks of it, the bowels acquire a preternatural sensibility, which pre-disposes them to dysentery. He should therefore consider an attack of diarrhœa as a serious admonition to cherish his health, and to pay a constant attention to the state of his bowels.

CHAP. IV.

OBSERVATIONS ON DYSENTERY, AS IT AP-
PEARED IN THE CAMPAIGN OF 1801.

TO a practitioner in the army, dysentery is a still more interesting disease than diarrhœa. Its danger and obstinacy are greater, and its symptoms more variable. It is this disease which makes the greatest havock in camps. Diarrhœa is dangerous, chiefly as it is liable to degenerate into dysentery: Dysentery strikes more seriously at the patient's life. It is more apt to assume, on a sudden, an alarming and fatal appearance. The recovery is more gradual, and subject to more frequent relapses; and, when cured, it leaves behind it deeper traces of its mischievous effects on the constitution.

 SECT. I.
Description of Dysentery.

THE distinguishing symptoms of dysentery are; sickness at stomach, general uneasiness

in the bowels, sometimes amounting to acute pain; straining at stool, and tenesmus. The stools are frequent, but small, consisting sometimes of a frothy, but more generally of a mucous matter, with little or no natural feces, excepting what come off in a hardened state. Though not always, the stools are often intermixed with blood, and sometimes with pieces of a membranous substance.

Dysentery is considered by some physicians as a peculiar fever, communicated by contagion to the general constitution, and operating as the immediate cause of all the local symptoms. Dr. CULLEN classes it among the primary pyrexia, and considers its febrile character as one of the chief marks by which it is to be distinguished from diarrhœa. But when we attend a variety of patients under both diseases, we find such distinctions far from being so clear in nature as they are described in systems. Dysentery appears under various forms, some of which are entirely free from original fever. In unhealthy situations in hot climates, the dysentery that breaks out after the rainy season, is often, strictly speaking, a febrile disease, ushered in with strong pyrexia, and accompanied with it during the whole of its course. Such a dysentery Dr. CLARK observed

served at Bengal in 1768*. The epidemic dysenteries that have appeared in Newcastle-upon-Tyne, are mentioned by the same author, as sometimes attended with pyrexia in an early stage. But often, where fever accompanies it, we are to consider the fever as an independent disease, and the dysentery as accidentally combined with it, or as a consequence of a particular direction of the febrile action in the system. Hence, during the prevalence of remittent fevers, dysentery often appears as a collateral epidemic, sometimes attacking the patient at the same time with the fever, and sometimes at a subsequent period of its course. In Egypt, a hot and dry country, entirely free, at the season when we were there, from that dampness which cherishes the miasmata of fevers, we had very few febrile diseases of any malignity. The dysentery which prevailed among us, should, notwithstanding this circumstance, have commenced with pyrexia, if that had been a necessary part of the disease. But it generally began with simple diarrhœa. Sometimes it commenced with gripes, or with painful stools succeeding

* See CLARK'S Observations on the Diseases which prevail in long Voyages to Hot Countries.

costiveness, but hardly ever with well-marked febrile paroxysms. That debility which preceded it was rather a pre-disposing cause than a part of the disease. One or two cases occurred which commenced with a febrile affection, but they were evidently cases of dysentery following an inflammatory fever. This fever is generally produced by excessive fatigue, or exposure to cold, operating on constitutions pre-disposed by debility. It sometimes goes off in a few days, without the appearance of any local affection. At other times it is followed by rheumatism, or other diseases of an inflammatory kind. In many cases, the patient being pre-disposed to disease in the intestinal canal, either from a peculiar irritability in that organ, or from some other circumstance, is attacked with dysentery. If the symptoms of the original fever continue equally violent, which is rarely the case, it is still a distinct disease, though combined with dysentery. But it generally goes off as soon as the dysenteric symptoms appear, leaving behind it that degree of debility which might be expected from the shock given to the system. When dysentery, however, is a little advanced, another species of fever seldom fails to appear. The pulse be-
comes

comes feeble and quick, and thirst is urgent. This belongs properly to dysentery. It consists in a state of debility, combined with constant irritation, both produced by the severity and continuance of the local affection of the bowels. It is of the same kind with those febrile symptoms which accompany local inflammations, extensive wounds, or any other injury external or internal, and which vary according to the state of the local disease.

Sir JOHN PRINGLE expresses in the following words, an opinion very common on the subject of dysentery :

“ The dysentery, as SYDENHAM observes,
“ sometimes begins with a rigor succeeded
“ by heat, but oftener with gripes without
“ any feverish sensation. This last part is,
“ perhaps, not strictly true; for though the
“ patient himself may not mention any fe-
“ verish symptom, yet upon examination we
“ shall find that alternate sensations of heat
“ and cold, lassitude, loss of appetite, and
“ the like febrile affections, have generally
“ been more or less the fore-runners of the
“ disease. Frequently, the beginning of a
“ flux will have the appearance of a bilious fe-
“ ver; for the patient will have a fever, with
“ a disorder in his stomach and bowels, for

“ two or three days before the purging comes
 “ on; but after that, the feverish symptoms sen-
 “ sibly give way. At other times, upon fatigue
 “ and exposure to cold during the dysenteric
 “ season, the men will be more suddenly seized
 “ with the flux, but rarely without some degree
 “ of fever. The sensible diminution of the fe-
 “ ver upon the appearance of the looseness,
 “ seems to justify that expression of SYDEN-
 “ HAM, when he calls dysentery the fever of
 “ the season turned in upon the bowels.”

This ingenious writer, probably, in the course of his practice, found dysenteric affections of the bowels, always preceded by febrile symptoms in different degrees; but he goes too far when he establishes it as a principle, that the case never can be otherwise, and when he accuses SYDENHAM of overlooking such symptoms, on account of their slightness. The disease, indeed, is generally preceded by languor and debility; but if we account these sufficient marks of fever, we might apply the same doctrine to many other diseases, which, though never accounted febrile, are particularly apt to attack debilitated constitutions.

Subsequent authors have gone still farther, by ranking dysentery among the primary pyrexia,

rexia, and placing it as far as possible from diarrhœa, in their systems of nosology. Impressed with an opinion of the superior accuracy of the moderns, I for some time looked with no small curiosity for well-marked cases of true dysentery in the army of Egypt, and was rather disappointed to find that almost every instance of the disease, had in some one of its stages a mixture of diarrhœal symptoms. I had been taught to believe that the proper dysentery (that which is most distinct from diarrhœa) is the most formidable disease, but I found, contrary to expectation, that those dysenteries which began with diarrhœa, often proved the most violent. I will therefore venture to affirm, that a medical man, on finding bowel complaints prevalent in a hot dry country, will have greatest satisfaction in practice, if he preserves his judgment unfettered by any systematic distinctions betwixt these two diseases, and practically considers them as different modifications, or different stages of the same morbid affection*.

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* It is not an easy matter, in a system of nosology, to make a precise distinction betwixt diseases attended with pyrexia, and those which have none. Many diseases are

In dysentery, the whole alimentary canal is affected. Nausea in the stomach, uneasy feelings in the small intestines, pain and tenesmus

febrile on some occasions, and not on others. Many become febrile by the severity of local pain, or a derangement of action in particular organs. Almost any cause that gives a shock to the system, is capable of producing general pyrexia. As local complaints often produce pyrexia, pyrexia on the other hand, is often a pre-disposing cause of local complaints. Hence, the local symptoms that sometimes supervene in typhus fever. Hence, inflammation in the lungs, or rheumatic pains, are frequently induced by an inflammatory fever, in consequence of which, the disease changes its name. Even febrile affections proceeding from external injuries, are now and then followed by fresh local symptoms in a different part of the body. In the same manner, both diarrhœa and dysentery are often induced by an accidental febrile attack. And on the other hand, their effect on the general constitution has often something in it of a febrile character. But neither of these circumstances entitles dysentery to rank among the primary pyrexia.

SYDENHAM, describing the dysentery of 1669, makes a remark on this subject, worthy of his usual perspicacity. “ Quantam cum hæc quam descripsimus adfinitatem habeat endemia ista Hebernorum dysenteria, non satis scio, cum nondum mihi ea innotuerit: quin et in his, quas incolimus, regionibus, quomodo se habeat dysenteria, quam jam depinximus, si ad illas referatur, quæ aliis annis infestabant, mihi pariter incompertum est: cum fieri quidem possit, ut variæ enascantur dysenteriarum species, ut sunt variolarum, et epidemicorum aliorum, diversis

“ consti-

nesmus in the colon and rectum, are various forms of distress, proceeding from the same state of morbid irritability and depraved sensation, existing in the whole canal. There is, at the same time, a perverted action in those numerous minute organs which secrete the intestinal juices, in consequence of which, the qualities of these juices are vitiated. The absorbents of the intestines, also, most commonly act with too much power, and take back into the constitution too large a proportion of moisture, leaving only a thick mucus, and a little clotted feces to come off by stool. Along with these symptoms, there is a general apathy in the bowels, to their regular stimuli, and a consequent inability to propel their contents. That general tone which, in health, enabled them to perform their regular functions, is destroyed, and leaves only a depraved and scattered sensibility in their individual

“ constitutionibus propriæ, et quæ proinde medendi metho-
 “ dum, in aliquibus diversam sibi suo jure vendicent. Ne-
 “ que est cur hos naturæ lusus tantopere deminemur ;
 “ cum in confesso apud omnes sit, quod quo profundius in
 “ quæcunque naturæ opera penetremus, eo luculentius no-
 “ bis adfulgeat ingens illa varietas, et divinum pæne arti-
 “ ficium, operationum ejus, quæ captum nostrum longe
 “ superant.”

parts.

parts. It is this sensibility that produces a strong inclination to go to stool, and frequent attempts to discharge the feces which give internal annoyance, while the debility of these organs renders such attempts unsuccessful.

The symptoms of this disease, though always depending on the same morbid state, and exhibiting one general character, vary in their degrees and combinations, both in their commencement and progress, according to the constitution and latest habits of the patient.

Costiveness is sometimes the first symptom that appears. A degree of torpor affecting the canal, prevents it from obeying the natural stimuli, and performing its office. When this continues for a time, its functions cannot fail to become more materially disordered.

The feces, also, too long retained, and producing a constant distention, impair the power of that delicate organ. At last they can be retained no longer, and the distention they give, produces a stimulant effect, which makes the patient discharge them with much pain, and with all the marks of a confirmed disease. A little mucus accompanies the hardened feces, and a little blood, proceeding from
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the straining with which the stools are attended. From this moment, the stools become frequent, the disease assumes a more active form, and, if it be not stopped by proper treatment, a most fatal train of dysenteric symptoms speedily follows.

Such was sometimes the mode in which this disease made its attack in Egypt; but more generally it commenced with the symptoms of diarrhœa. The stools were copious as well as frequent, and little or no mucus at first appeared. But nausea and gripes distinguished it from the simplest form of diarrhœa. The stools gradually become smaller, and their proportion of mucus more considerable. Straining came on, and increased till it degenerated into the most distressing tenesmus. In short, the symptoms of diarrhœa in all respects gave place to those of dysentery.

Nausea was a constant attendant of the disease. Food, particularly of the animal kind, was uniformly loathed. Even milk, an article easily received and digested by persons in health, lay heavy on the stomach. It was often rejected by immediate vomiting, and an utter abhorrence of it followed through the whole

whole course of the disease. In some patients, the nausea was accompanied with spontaneous vomiting, and the ingesta came up with no other change than a little acidity.

The sensations in the abdomen were very uncomfortable. Sometimes the patient experienced a remarkable torpor in that part of the system, which he expressed by saying, that he felt as if he had no bowels at all. At other times he had a constant sense of rawness, and felt as if his whole bowels were mangled and excoriated. The sensibility to cold was extreme. The accidental admission of cold air, or a moment's removal of the accustomed coverings, produced sometimes a death-like chilliness, sometimes an acute pain, passing through the abdomen, and striking to the heart.

Severe gripes, though not a constant, were a very frequent symptom of this disease. Sometimes they were the first to indicate its attack. They differed in different patients, both in severity and in the manner in which they seized them. Sometimes they did not remit till they were relieved by the power of medicine. Sometimes they returned at diurnal periods. In some they were irregular, and apparently came on without any particular
cause,

cause. In others they were only the occasional effect of improper aliments.

Tenesmus was one of the most distressing of all the symptoms. When it continued for any length of time, it rendered existence miserable. It destroyed the patient's spirit, and destroyed his whole strength. We sometimes had occasion to see our patients reduced by tenesmus to the most deplorable state, obliged to go continually to stool, tantalized with the hope that they might find relief, if they could but procure a motion of the bowels. But their attempts only increased their torments. Every effort was succeeded by an insupportable pang. The wretched patient expressed in his countenance the sharpest agony, mingled with the most dismal despair. He longed for death; he dreaded the continuance of life as the prolongation of his miseries; and all he desired of his medical attendant, was to give him such medicines as would serve in the mean time to blunt his acute sufferings. Sir JOHN PRINGLE remarks, that tenesmus is attended with a state of inflammation in the rectum, and that it not unfrequently produces death by a subsequent mortification of that intestine. Without producing mortification, however, tenesmus is sufficient to destroy life,
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by the mere acuteness of its pain, together with that extreme debility which it rapidly induces.

The general appearance of the stools, I have already described, and have but little to add on their varieties. I shall only observe that, at the period when a diarrhœa began to transform itself into dysentery, they very often assumed a greenish colour, and sometimes consisted of a semi-pellucid jelly. Scybala were of rare occurrence. We are to expect these chiefly in dysenteries preceded by costiveness. In such as commence with diarrhœa, with gripes, or with fever without costiveness, scybala will seldom or never be formed, if sufficient care be taken to administer the necessary laxatives.

The stools were often streaked with blood, and then they became more alarming. But we must attend to the obvious distinction betwixt those cases in which the blood proceeds from the anus and lower part of the rectum, and those in which it issues from the colon and other higher intestines. In the one case, it is of a vivid colour, and not thoroughly mingled with the feces: in the other, it is of a duller red, and intimately united to the whole feces. In the one case, it is only an acci-

accidental occurrence, proceeding from an abrasion of the anus by the frequency of the stools. In the other, it shews a destruction of the organic coats of the intestines, an abrasion of parts which are exposed to very great irritation, and beyond the reach of curative applications, or else, a relaxation of the mouths of the exhalant vessels of the bowels, hardly compatible with a subsequent restoration of health. Sir JOHN PRINGLE incautiously says, that the passing of blood should not excite alarm, because a man often loses more by other kinds of hæmorrhage, without suffering any injury. This, to be sure, is a fact; but the consequence deduced from it is not legitimate. The quantity of blood lost, considered abstractedly from the manner of losing it, is by no means a criterion of the effect produced. It is well known, that by venesection a man will bear a considerable loss of blood, when taken slowly, while half the quantity would affect him with deliquium animi, if taken from him in a copious stream. Much must also depend on the part of the body from which it proceeds. A man may be essentially benefited by losing blood from an external wound. But the loss of the same quantity from the bowels in dysentery, indicates a most alarm-
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ing injury of vital organs. Experience is uniform on the subject. Those dysenteries in which blood gradually exudes from a large portion of the intestinal canal, are usually found to be the most dangerous and difficult of cure. When this symptom appears, it is not without reason that our fears are increased, nor without necessity that our attention becomes more vigilant.

When the stools contain pieces of a membranous substance, the case is still more deplorable. I do not believe that these membranes are pieces of the villous coat of the intestines. They are rather adventitious substances, formed in the lymph which adheres to the internal surface of the intestine. Supposing them to be truly organic, this would not be a decisive proof that they are parts of the intestines. New organic membranes are known frequently to be formed over membranous parts of the body, that are in a state of inflammation. I do not know if many of the membranes passed in dysentery have been microscopically examined, to determine whether they are organic substances, or mere depositions from secreted fluids. Such an examination would throw some light on the pathology of the disease. I had no such opportunities

portunities during the campaign, as none of my patients, so far as I could discover, had stools of this kind. I have, however, on other occasions, when examining substances passed by stool, which at first appeared to be organic, always found, by making a gentle pressure, that they were mere coagula. It is hard to conceive that a man could live till his bowels were so far destroyed as to fall in pieces, except in intussusception and other cases where communication with the mortified part is totally cut off. In some dysenteries, indeed, the intestines have been eroded through all their coats, and a quantity of feces has been found on dissection lodged in the cavity of the abdomen. But such erosion is a gradual process, in which the parts dissolve in the liquid that consumes them. They do not come away in entire pieces in so great a quantity as to form this species of stools. But whatever those membranes are, they certainly indicate imminent danger. On the most favourable supposition, they shew that the internal surface of the gut has been long in a state of obstinate inflammation; not that high and rapid inflammation, indeed, which takes place in enteritis, but an inflammation insensibly begun, and gradually increased by the progress

of the disease. The formation of such membranes is not ascertained till they come off by stool. At that crisis, the danger is extreme. The inflamed intestine, deprived of the defence which the membranes had given to it, is exposed in the most delicate and irritable state, to the acrimony of the feces, and the constant friction attending the motions of the parts. When such stools appear in a tropical climate, the patient has not twelve hours to live.

Before dismissing the subject of stools, I shall take notice of Sir JOHN PRINGLE's stricture on SYDENHAM's assertion, that in some cases of dysentery, there are no stools at all. Such a disease, Sir JOHN would not have called dysentery, but simply costiveness, or sometimes, perhaps, a species of colic. But whatever strained nicety may be occasionally requisite in framing a system of nosology, SYDENHAM certainly in this instance adhered more closely to the analogy of the symptoms. In some dysenteries there are very few stools, though frequent unsuccessful efforts are made, accompanied with tenesmus. In other cases there is no tenesmus, there are but few stools, yet such as appear have every mark of the dysenteric kind. I see no impropriety in extending

tending a little wider our ideas of this disease, by including under it, similar complaints in which there are no stools at all, unless produced by the administration of laxatives. We sometimes see instances of a bowel disease, which, excepting that it is attended with total constipation, has every mark of dysentery, the same loss of appetite, and the same gnawing sensations in the stomach and abdomen; and such stools as are brought away by laxatives or glysters are of dysenteric appearance. What could any rational nomenclature denominate such a disease but dysentery?

An almost total want of digestion was, with us, a constant symptom. The patient could hardly receive any species of aliment. Those articles which he was obliged to swallow for the relief of faintness or thirst, such as cordials and bland liquids, remained in the stomach in the same state in which they were taken. I have frequently found, when an emetic was exhibited to discharge the stomach of a load of ingesta which it would not transmit downward, that the patient perceived, in the matter brought up, the original taste of those substances in succession, which he had taken for a number of days before.

Along with loss of appetite, there was a yel-

low clammy deposition on the tongue, which darkened as the disease advanced, till at last it became a dry black crust.

Faintness and prostration of strength, with laborious respiration, were constant attendants on dysentery, and were greatly increased by any exposure to the heat of the sun. If a patient was on any occasion removed under the rays of the sun, from one tent to another, even when it was far from mid-day, his faintness and dyspnœa were so severe, that he seemed in immediate danger of expiring. Frequently, on attempting to raise himself to the erect posture, he was seized with total syncope. The smallest loco-motion exhausted his strength, and even the fatigue of answering a question was too much for him to bear.

After dysentery had been of some standing, the powers of thought were often apt to be affected. The patient was unable to apply his mind to those objects which formerly interested him, or if his mind was engaged, his anxiety was excessive, and his imaginations irregular. He became extremely impatient, and irritable in his temper. If he wished for any thing, he was racked with the most wretched perturbation of mind till he obtained

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ed it. This mental debility sometimes passed into total delirium. He forgot where he was, and insisted on sending those around him on the most fanciful errands. The delirium first appeared in the night, or when there was some propensity to sleep. But when it became constant, and independent of drowsiness, it was generally a hopeless symptom. In this disease, delirium gives a much worse prognosis than in typhus fever, because in the latter disease, the brain being for the most part originally and primarily affected, may be attacked with delirium, while latent principles of health remain, sufficient to produce a recovery. But in dysentery, the affection of the brain is of a secondary order, and proceeds from that of the bowels. Therefore, wherever it arises to such a height as to produce continual delirium, we have reason to apprehend that the dysentery has made the most serious progress towards wholly undermining the powers of life. I must, however, mention, that I have seen a man recover even after this dangerous symptom.

In a state of extreme debility, if there was no delirium, the patient was sometimes seized with distracting head-achs, which not only deprived him of sleep, but prevented him

from lying in bed with any composure. He rose up in great agony, grasped his head with both his hands, and vainly sought for relief in every variety of posture. He sighed and groaned in the most doleful manner, and where absolute weakness did not prevent him, exclaimed aloud. This sometimes continued for a whole night. He perhaps obtained a little sleep on the succeeding day, but on the evening following, he found the distracting headaches threatening to return. The restlessness of which he began to be conscious, convinced him that he had another long night of equal misery to endure. He felt his reduced strength inadequate to the conflict. He wished that his senses were buried in delirium, and if this circumstance took place, it brought a relief for which he was justly thankful. Though a poor exchange, it was advantageous. It was neither so unfavourable to happiness, nor did it so rapidly destroy his strength.

All these symptoms of debility were evidently produced by the continued pain attending the diseased state of the bowels. Pain, though trifling in degree, is sure to reduce the strength, when constant, and of long duration. Pain in parts so delicate, and so important to life, is much more debilitating than

than in the extremities. This does not entirely proceed from the important office which the intestinal canal performs in supplying nourishment to the body, through the medium of the circulation, but primarily from that intimate connexion which it has as an organ of sensation, with the whole animal system. A small injury there, unhinges the general frame with much greater quickness than can attend any communication through the circulating system; and, when the bowels are again brought by a paregoric draught to a comfortable state, the whole body is with equal quickness relieved and invigorated.

It was by gradually exhausting the strength that the dysentery proved fatal. As the patient was harassed with constant pain, and deprived of sleep, the powers of life speedily declined. The organs of respiration, which all along shewed their debility by panting and dyspnœa, were gradually more weakened, till the patient was unable to breathe at all. The muscular coats of the arteries lost the power of impelling the blood. The whole organic system ceased to act, and the patient's sufferings were terminated in death.

But this disease, especially if well treated, often took a favourable turn. The patient,

after being reduced, perhaps, to the lowest state of debility, and threatened for some time with the extinction of life, continued in a stationary state for a few days, and he was still in extreme distress, and could not give a favourable account of his feelings: his medical attendants observed that the morbid symptoms did not increase, and inferred that a healthy action was begun, which feebly resisted the progress of the disease. No relish for food was for some time felt; but his reluctance to it being less violent, he was in a day or two induced, from a sense of the necessity of it for support, to take a small quantity, and found that he was now able to retain it, which he had not formerly been. Day after day, he was able to take a little more, though it was some time before he could receive it with real appetite. The extreme nausea left the organs of taste and digestion in a state of torpor, and food was received without any positive sensation, either of pleasure or disgust. A little pleasure in eating, however, began afterwards to be felt, as his recovery advanced. In the mean time, he could speak without pain, and could employ his mind on a variety of amusing objects without fatigue. But a very little muscular

muscular exertion would have still exhausted him, and the smallest application to business would have put his feelings to the rack. He had often a sanguine desire to resume his usual habits of life; but he found his strength unequal to it, and, overcome by one or two attempts, prudently resigned himself again to a peaceful repose, and waited for the return of more perfect health. The stools were still greenish, jellied, or otherwise preternatural, but daily improved. His bowels required the aid of medicine to enable them to perform their functions with regularity, and every precaution which he had observed in his worst state, was still necessary to prevent a relapse.

A relapse was easily produced by the slightest inattention, or accidental neglect, and sometimes unhappily took place, where neither the patient nor any of his attendants were chargeable with negligence. A relapse, for the most part, produced a more obstinate disease than the original attack. Medicines which had in the first instance proved useful, were now inert, and articles of diet, which had served for comforts, were rejected. A dysentery, at first tolerably mild, and promising a favourable termination, if followed by one or two relapses, generally proceeded to the most dangerous stage,

stage, before it could be cured, and very frequently proved fatal.

Dysentery, when cured, leaves behind it for a time a more than usual delicacy in the alimentary canal. It becomes necessary for the patient to avoid particular aliments, from finding them pernicious to his health ; to make choice of others which he finds more innocent, and to employ a few occasional precautions, which his own experience points out, for preventing the most distant approach of a bowel disease. A tendency to acidity in the stomach, and to occasional diarrhœa, are the most common symptoms of the injury which the constitution sustains.

There are a few very troublesome local complaints which this disease occasionally leaves behind it. The first is a delicacy in the intestine rectum, which, on slight exposure to cold, produces a troublesome pain, that becomes particularly acute when the patient goes to stool, and sometimes annoys him, by the sympathy of that part with the bladder, in voiding his urine.

Another complaint is prolapsus ani, the effect of that state of the rectum, which the irritation of the disease has produced by exhausting the power of the muscular fibres.

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The same complaint often follows diarrhœa, and it is very frequent among children. But that prolapsus which proceeds from dysentery, is of a more obstinate kind. The rectum, deprived of its proper tone, recovers its action with greater difficulty. This complaint often continues for months or years, and sometimes for life.

Connected with this affection we sometimes find hæmorrhoids and fistula. The rectum, having prolapsed, and not fully returning within the anus, part of it is constricted by the sphincter, and a state of painful inflammation ensues, which sometimes forms a small abscess, and occasionally degenerates into a fistulous sinus.

I conclude the history of this disease with mentioning one circumstance which was observed in every stage of it, but more especially while the state of high irritation continued, and before the profound torpor came on. I mean, the instantaneous sympathy which subsisted between the most distant parts of the intestinal canal. A slight irritation, which in health would pass off without any sensible effect, was communicated in dysentery through the whole. A draught of cold water had often hardly time to pass into the stomach, before

before it produced an inclination to go to stool. This effect was also produced by smoking tobacco, though the smoke never goes farther down than the pharynx. And on the other hand, when there existed a tenderness in the lower part of the rectum and sphincter ani, a slight exposure of those parts to cold produced an exacerbation of the disease through the whole intestines. I have seen a complete relapse brought on in this manner. Exposure to the cold of the evening in thin small-clothes produced a settled pain in the bottom of the pelvis, which next day was followed by a renewal of all the symptoms of dysenteric debility, both in the bowels and in every part of the system.



SECT. II.

Dissections.

As dissections, in the army, are chiefly confined to general hospitals, and meet with opposition in regimental practice, I had no opportunity of examining, in this manner, the effects of the disease. I must therefore refer to Sir

JOHN

JOHN PRINGLE, MORGAGNI, and other writers who have elucidated this part of the subject. I must particularize Dr. JOHN HUNTER, whose dissections of dysenteric patients are described with brevity, but with uncommon minuteness and precision in his "Observations on the Diseases of Jamaica*." It is a well-known circumstance,

* This writer's words are as follows :

" Upon a first view, the bowels, particularly the colon,
 " appear irregularly contracted, and redder than natural at
 " the contracted parts. Upon a nearer inspection, by cut-
 " ting out portions of the gut, and examining the internal
 " coats, the appearances of disease become more evident.
 " There are to be seen small tubercles, like pustules, some-
 " times in a smaller, sometimes in a greater number ; and
 " they are to be found in different stages, so that their pro-
 " gress can only be collected from several observations com-
 " bined. The same subject will frequently furnish, in dif-
 " ferent portions of the gut, examples of the several stages.
 " Their progress appears to be nearly as follows. There
 " is first a small round tubercle, of a reddish colour, and
 " not more than one-tenth of an inch in diameter, and be-
 " comes paler as it grows larger. In this stage there ap-
 " pears a small crack on the top, with a slight depression,
 " which gradually increase ; and on examining the contents
 " of the little tumor, I have generally found them to be a
 " cheese-like substance. The pustule, for though it con-
 " tain no pus, I do not know any name more expressive of
 " its appearance, is seated under the villous coat, between
 " that and the muscular coat. As the opening enlarges,
 " the edges become prominent, and the base grows
 " rough

cumstance, and often mentioned by authors, that the colon and rectum are the parts most commonly found diseased. For this, two reasons may be assigned: the first, that the irritation with which the straining at stool is accompanied, being chiefly seated in the colon and rectum, promotes in a greater degree in those parts of the canal the progress of ulceration and of inflammation. Hence the rectum is most affected in cases attended with much tenesmus. The second is, that the morbid contents of the intestinal canal, becoming more acrimonious as they pass along, produce greatest mischief just before they are evacuated. The feces also are of firmer consistence when they descend into the large intestines, and consequently it is there that their friction chiefly aggravates the disease. However, I have seen an instance of dissection, in which the jejunum and ileum were found in a state of high inflammation

“ rough and scabrous, from which matter oozes out that
“ is sometimes tinged with blood. Such is the progress
“ of one; but they are often in clusters, and become con-
“ fluent, so as to form a rough, unequal, ulcerated surface,
“ with a hard and thickened base. Sometimes they appear
“ like a small eating ulcer, in the gut, in which the promi-
“ nence of the edges gives an appearance of a loss of sub-
“ stance, or as if the villous coat were entirely removed.”

with

with tubercles, while the colon and rectum were comparatively sound. Dysentery is a disease seated in the whole intestinal canal, and commits the greatest ravages in those parts that happen to be most exposed to irritation, or that are previously in a state of greatest debility.

SECT. III.

Causes of Dysentery.

THE causes of dysentery are precisely the same with those of diarrhœa. When they produce dysentery, it is by operating on the constitution in a different form. They injure the bowels by imperceptible degrees, before any troublesome symptoms present themselves to our notice. For this reason, dysentery is a much more serious disease than diarrhœa.

This disease is often propagated by a specific contagion; yet not so universally as has been sometimes represented. In cold climates, we find many cases evidently sporadic. When, in hot climates, or in a military campaign, the disease becomes prevalent, this does not of itself

self warrant us to conclude that it is propagated chiefly by contagion. Its prevalence is in a great measure accounted for by the application of the same causes of disease to a number of individuals together. However, there certainly are clear proofs that it is contagious in its nature. Instances have occurred in hospitals, of wounded men, where dysentery, accidentally introduced, has been communicated to a whole ward, attacking not only the patients who were weakened by disease, but also their nurses, and other attendants. It is indeed possible for the patients and attendants of an hospital to be seized with bowel complaints, from a pollution of the air, occasioned by wounds, by want of ventilation, and other causes, distinct from dysenteric effluvia; but the effluvia, both of diarrhœa and dysentery, certainly have a peculiar tendency to produce a morbid affection of the bowels*. Instances of a more decisive nature have occurred, in which sailors, after returning from a hot country, labouring under dysentery, have spread the infection among the people about the harbour, who fre-

* I by no means consider it as an established, or even a probable doctrine, that diarrhœa is distinguished from dysentery by not being contagious. I can only grant that its contagion is not so active or remarkable.

quented

quented the same necessaries, when no dysentery had previously raged in the neighbourhood. Instances of this kind in Newcastle-upon-Tyne are mentioned in Dr. CLARK'S Observations.

As this disease is often in a great measure local, and is not necessarily connected with a primary fever, I am disposed to conclude that its contagion seldom or never exists in the matter of perspiration, or operates in consequence of being absorbed by the skin. It is probable that it exists chiefly in the stools, and operates in the form of exhalations, by affecting either the tender skin of the anus and rectum, or the organ of smell and taste. The sensations of these organs, particularly in a disordered state, have an immediate influence on the intestinal canal. It is also probable, that the vapour which proceeds from the lungs, and that which is brought up by the œsophagus in eructations, or even what is secreted in the internal feces, and carried off in vapour with the breath, contains the contagious effluvia of this disease.

Dysentery chiefly appears in the army towards the end of a summer campaign. This has been attributed to the dampness and putridity of the atmosphere at that season of the

year; but it is more owing to the debility previously produced among the men, by the heat of the summer, and the fatigue of the camp.

The operation of the pre-disposing and exciting causes of dysentery, has been explained in treating of diarrhœa. The chief pre-disposing cause of it in Egypt, was debility from the heat of the climate, which often brought on the disease in a gradual manner, without the aid of any active exciting cause. The chief exciting causes were, the application of cold, under the various unfavourable circumstances already specified, exposure to occasional fatigue, the immoderate use of cucumbers and melons, the imprudent drinking of cold water, and sometimes, I believe, the effluvia proceeding from the patients, and from the privies.

No instances, however, came under my eye, in which this last cause had any remarkable influence. Care was taken to cover the necessaries every evening with sand, to prevent the fomites from acquiring virulence by further putrefaction. Some medical men, indeed, followed a different plan: instead of encouraging the digging of necessaries, they allowed the patients to obey the calls of Nature in any spot at a little distance from the
tents.

tents. The appearance of excrement thus scattered about, was offensive to the eye, and it would prove highly injurious in a country where the air is both moist and warm. But in Egypt, while the heat was intense, the air was so dry, that excrementitious matters, in small quantity, were in a few minutes completely hardened, and no such effluvia could arise from them as proceeded from the necessaries, where they remained in a moist state.

Physicians have given themselves no small anxiety about the discovery of the proximate cause of this and other diseases; that is, the first effect which is produced on the constitution, and which is the immediate source of the symptoms. This ought not to be termed a cause, but the intimate nature of the disease itself. Some suppose it to consist in a spasmodic contraction of the colon; others in a species of debility affecting the whole intestines, and others in a peculiar kind of inflammation. These accounts of the subject, though they may have a shew of minuteness, from the systematic manner in which they are sometimes expressed, give but imperfect views of this part of pathology. When we speak of a spasmodic contraction, we only mention

a mechanical effect ; but we ought to push our researches a little deeper ; for, in the human body such effects are produced in a manner totally different from other mechanical operations. Betwixt the external cause and these palpable effects, the important laws of animal life intervene, which imply a chain of impulses and motions of a distinct kind, and much more complicated than those which present themselves in the other departments of Nature. With these motions, certain animal sensations are intimately and inseparably connected. Every fibre of the animal frame has its own individual properties, that render it liable to be affected with various sensations of pleasure or of pain, according to the multifarious qualities of the objects applied to it. These sensations are modified by association and habit, and acquire certain tendencies, which are sometimes salubrious, and sometimes hurtful. The different parts of the living system are, at the same time, so closely connected, that a sensation in one organ, if sufficiently powerful, extends its influence to others, partly through the medium of the sensorium, and partly by an immediate connexion. The greater part of our important sensations passes through the sensorium ; a law which renders the whole system,

system, in its most energetic functions, one entire organ. But sensations often exist in particular fibres, which are too faint to be communicated to the brain, and of which consequently the man is unconscious. These have been termed irritations, by physiologists, and have been supposed to be a species of animal motions attended with no sensation at all. But every appearance of analogy between these and the other phenomena of life, leads us to consider them as attended with slight specific sensations in the parts affected. Of this kind are those which attend the secretions and all the vital functions of the body. Of this kind are the contractions produced in delicate surfaces by the substances we term astringent; many spasms affecting particular parts, while the patient feels no pain; and some of those various changes of action that occur in the intestinal canal, both in health and disease. A train of depraved sensations and motions may commence, though we suffer no inconvenience before the disorder has considerably accumulated. The fibres, losing their proper character, neither move nor feel in the same manner as before, when the usual objects are applied to them. They are torpid for want of power, or subjected to a morbid irritation by the in-

congruity of their present habits with the stimulants applied. Of this the patient, especially if his general sensations be not delicate, is for some time unconscious, till at last he is disturbed by a train of diseased motions, and painful feelings, which all at once forces itself on his attention. These now become palpable symptoms. The symptoms of dysentery I have already described, and have mentioned some of the local phenomena which accompany it, which I shall here bring into a collected point of view.

The first state of the disease consists in a preternatural irritation, without any such organic injury of the intestines as could be discerned in dissection. This is sometimes followed by rapid inflammation and gangrene, especially in those dysenteries that commence with strong pyrexia. But in general, after the stage of mere morbid irritation, pimples or tubercles are formed, which gradually increase to the size of pustules. They are attended with a slow inflammation, and followed by an erosion of the gut. These topical affections heighten the original morbid irritability. A spasmodic constriction of the whole gut at the same time takes place. This is increased in such parts as are most affected with ulceration and erythema. Wherever there is a prolapsus
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of the rectum, we see during life a specimen of constriction in that intestine. After death, some parts of the colon, as already mentioned in the note from Dr. JOHN HUNTER, are found in a constricted state, and surrounded with more traces of ulceration than the rest of the gut. This constriction, added to the torpor of the whole primæ vice, makes the passage of the contents of the bowels still more tedious and painful, and, by compressing detached portions of the feces, sometimes forms them into scybala. Violent spasmodic motions, when they act in opposite directions, produce a stretching of the fibres, and a tendency to laceration, which are sometimes the cause of those tormina from which dysenteric patients so severely suffer.

SECT. IV.

Prevention of Dysentery.

IT is necessary for Europeans, on removing to a hot climate, to employ a few simple precautions against this and other diseases. They ought, above all things, to avoid ex-

posure to the immediate rays of the sun. They ought to conduct all their business through the day under a shade, and choose the cool of the evening, or rather the morning, after the fogs are dissipated, for walking abroad. If forced to go out at all in the middle of the day, they ought to use a very thick umbrella, forming a complete shade. The covering of the head should be of some thick white substance, and the European black hat should be laid aside. The white turban of the Turks is excellently adapted to a hot climate. Its white colour absorbs less of the heat of the sun than any other, and its numerous folds prevent the heat absorbed from penetrating to the head. In this country, indeed, such a covering would prove unpleasantly warm, as it would confine round the head the heat generated by the animal process. Here we find the external air agreeably cool, and feel rather oppressed, when much loaded with clothes on any part of the body. But, in such a climate as that of Egypt, the external heat so much exceeds any that is generated by the body itself, that a greater coolness is sometimes preserved, by confining the heat of our own bodies, than by exposing them to the external air. Those
oriental

oriental travellers, who exchange their hat for the turban, experience it to be a much cooler and more agreeable covering. The Turks and Egyptians, besides, keep their heads comfortable by constant shaving, and washing with cold water. Strangers have much greater occasion than the natives, for using such precautions. If they do not, the intense heat of the sun, oppressing the head, produces a debility which affects the whole body, and renders it liable to many other diseases as well as dysentery.

It is also necessary to avoid taking much exercise during the hot part of the day. Though that exercise should be taken under a perfect shade, it will still prove prejudicial, as the heat of mid-day is considerable, even in the shade, and sensibly co-operates to render occasional fatigue much more exhausting.

The constant wearing of flannel is strongly recommended by some, and even for lining, is very much used by European merchants in Egypt. This has the advantage of keeping the body in a uniform heat. While it obviates the scorching influence of the sun, it also prevents those fits of chilliness that are often felt in the shade. The body being much subjected to perspiration in that country,

try, there is always danger of a partial and hurtful chill, from the evaporation of the moisture. But when the moisture is prevented from escaping, by flannels, furs, and other substances that are slow conductors of heat, those chills are not produced. Such a dress, then, is far from being so hurtful, or so apt to induce a delicate habit of body, as some have supposed. Yet I am not of opinion that it is necessary for the preservation of health. As long as a man feels himself comfortable in such a climate, nothing more of that kind should be worn, than a single flannel shirt. By constantly wearing thick coverings, a man deprives himself of the advantage which he might derive from them, when attacked with a complaint in his bowels.

As to diet, there is no necessity for abstaining, with scrupulous nicety, from particular articles. The French eat less animal food than the English, yet are equally liable to disease in a tropical climate. If, from any pre-conceived idea, a man all at once gives up the use of those aliments to which he has been long accustomed, the effect will be worse than if he were to continue his former mode of life, though indifferently suited to the climate. The British, when they go to
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a hot country, ought neither to leave off the use of butcher meat, nor of wines and spirituous liquors. But they ought to use them more sparingly than at home. As the alimentary canal, for the most part, becomes more delicate on going to a hot climate, such food ought to be used as is most easy of digestion, and tends least to cloy the appetite. The tone of the nervous and muscular system being also impaired, care should be taken to avoid such quantities of stimulating liquors, as ultimately tend to destroy it. Soldiers are in danger of indulging to excess in any article of diet that is new and agreeable to the taste, such as the cool refreshing fruits of warm climates. Some swallow these with unceasing voracity, till a load is collected too heavy for the constitution. The flavour of these fruits, carried to excess, produces a peculiar feeling, which overpowers every other sensation in the stomach and intestines, and thus forcing the sentient fibres from a healthy to a very morbid action, brings on a train of bowel disorders. From this cause, unfounded prejudices arise sometimes against fruits in general, and sometimes against those particular kinds of fruit that happen to be taken to excess.

When a man feels, in a hot climate, any
pain

pain or disorder in his bowels, he ought immediately to recollect, that it will degenerate into dysentery, if he be not on his guard. He ought to increase his clothing, especially over the belly. He ought to take great care that his covering in the night be of the proper kind; not so thick as to produce excessive perspiration, yet sufficiently ample, and sufficiently close, to prevent any partial coolness. The smallest cold admitted in the night, to any part of the body, will add to the bowel complaint. It would be of great advantage on this account, in hot countries, to use a sleeping dress of a particularly close kind, consisting of a cotton shirt, and loose trowsers in one piece, to tie as high as possible round the neck, with the sleeves and trowsers so long as to tie quite over the extremities. A man threatened with a bowel disorder, ought to wear some elastic woollen substance round his body, as the support which such a substance gives to the bowels cherishes health, and obviates the progress of disease. One of the Copts mentioned, when I made some inquiries about the health of the natives, that the sash universally worn in that country, is, besides its gracefulness as an ornament, considered as an excellent

lent preservative against complaints in the bowels.

When a person is seized with a sudden pain in the bowels, threatening any serious disease, aromatics are found to be of the greatest utility. A piece of cassia or cinnamon may be chewed with excellent effect; but ginger is still better. It gives immediate relief from soreness of the belly, restores a sensation of comfort through the intestines, and acts as a cordial to enliven the spirits. Among the Mamelukes it is a constant prescription, from being found almost universally effectual in such cases. It was extremely useful to those of our own countrymen, whom I had occasion to see employ it.

A man thus threatened ought to pay double attention to the choice of his diet. By minutely observing the vicissitudes of his sensations, he will easily discover the regimen most favourable to his health; and he must take care that no temptation of the palate entice him to tamper, in the smallest degree, with any thing noxious. A little relaxation in this respect may soon precipitate him into dysentery.

SECT. V.

Cure of Dysentery.

A DYSENTERIC patient, when he first applies for medical assistance, is generally in that situation which requires copious evacuation by the rectum. It is necessary to clear away the feces, which, by distending the bowels, generate pain and weakness, and sometimes, by their acrid qualities keep up a noxious irritation. For this purpose a powerful dose of the sulphate of soda, or the sulphate of magnesia should be given, and its operation, aided by tepid draughts of barley-water or gruel. If we give the salts in divided doses, they will produce with greater certainty a thorough evacuation of the bowels.

A purgative still preferable to salts is the oleum ricini. The action which it excites is not so violent as to injure the intestines, yet sufficiently powerful to produce a thorough evacuation. My friend Mr. BROWN, Surgeon of the 30th Regiment, says, he never experienced so remarkable success from any other medicine, and that he never lost a patient in
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the West Indies, if it was liberally administered in the first instance, by the mouth and by glyster. With this article, however, we were not supplied in the last campaign, so that I had no opportunity of observing its superior advantages.

While the patient is under the operation of a purgative, he should be carefully kept warm. If he only wears his ordinary coverings, he will receive comparatively little benefit from any medicine. He will be exposed to irritations in the bowels from every breath of wind, and the gripings will continue, or become more severe. In this article the present practice of physicians is too superficial, and till it undergoes a reform, they will remain ignorant of much pleasure and success which they might experience in the cure of dysentery. Warmth is not a secondary object. It is the very first that should be thought of. I shall give a particular account of what I reckon the best mode of covering the patient, and the mode which I followed in Egypt.

Four or five folds of fine flannel, or a large piece of thick fleecy hosiery, ought to be laid over the abdomen, and, over this, a flannel bandage should be bound, rather tight, and in a uniform manner, from the groin nearly
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to the arm-pits and back again. This mode of applying, or rather of confining, a certain degree of heat over that part of the body which is the seat of disease, is to be persisted in as long as the disease continues. When begun early, and well attended to, not neglecting the usual collateral means, it seldom fails to effect a cure. In whatever stage it is begun, with the exception of the very last, it produces a speedy amelioration of the symptoms, and cures many dysenteries that would otherwise be hopeless. It acts partly on the same principle as the tepid bath, which is one of the best remedies for inflammatory diseases attended with slight, but constant internal pain, and proceeding from cold. The flannel bandage possesses all its virtues, and is free from its disadvantages. The artificial bath, unless regulated by a thermometer, may be given too warm, and produce such perspiration as will bring on an alarming increase of debility. It gradually cools, and requires frequent additions of warm water, which break the uniformity of its temperature. That bath cannot be continued for so great a length of time as this disease requires. It would tire out a man's patience, and interfere with the common avocations of life. But, by wearing flannel,

nel, in the manner now described, the patient carries constantly along with him a bath of the best temperature, invariable in its heat, one which will, on no occasion, weaken him by profuse perspiration, which will not interrupt him in his eating, sleeping, or amusements, and which, being never laid aside till it is no longer necessary, cannot expose him to the effects of cold by a change of temperature.

The immediate effects of this swathing are, 1. The removal of that local torpor of the abdomen, under which a dysenteric patient often labours. Before its application, he feels as if he had no bowels, but when it is applied, the pressure which it makes restores over the whole abdomen those sensations which were deficient. 2. It obviates rawness and griping. Before applying it, the torpor which exists in the bowels is only interrupted by occasional gnawing sensations, which, on going off, leave him more torpid than before. The flannel bandage, by preventing those impressions of cold which form the chief cause of this uneasiness, does not fail to correct it. 3. It removes dejection and languor. The patient soon feels himself invigorated, and better fitted to relish the enjoyments of life. 4. It cor-

rects that dyspnœa which is so often the consequence of dysenteric debility. The support which it gives to the action of the abdominal muscles, and consequently of the diaphragm, enables the patient to respire with much less fatigue. This effect is experienced on the first application of the bandage; but if very tight, it will in a little time create a different sort of dyspnœa, of a less languid but more stifling nature, by preventing the full expansion of the lungs. In this case it must be made a little easier. The ultimate good effects of the flannel bandage are, an increase of general strength, and a healing process in the intestines, proceeding from an improved state of sensation in those organs. Its good effects ought to be experienced very soon after it is applied. If, in two or three days it should produce no change, we must conclude, either that the symptoms proceed from such a fixed state of the disease as requires other powerful remedies, or that the disease differs from the greater part of chronic dysenteries, which certainly owe their continuance and progress in a great measure to hurtful alternations of temperature.

When the bandage is first applied, much of its efficacy arises from its pressure. Pressure,
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even with the palm of the hand, often gives a temporary relief to the bowels. But after it has been continued for a week or a fortnight, the pressure is sometimes of less service, and may be diminished. In some old dysenteries the bowels are so tender, that little or no pressure can be borne. But the warmth produced by the fur or fleecy wool under the bandage, is of more lasting benefit, and should be kept up without intermission till the dysentery is cured. Though the bandage should be applied very lightly over them, the elasticity of the soft wool makes them adhere so close as to exclude all cold, in a manner that cannot be effected by the mere use of a flannel shirt.

In order to secure the good effects of the bandage, care must be taken that it be properly applied. In serious cases, I made a point of applying it myself, trusting most to its efficacy when I thus determined the exact degree of pressure that was made. Sometimes it was apt to loosen, and especially to move upward, so as to uncover the lower part of the abdomen. To prevent this, I first made it firm round one of the thighs, and after putting it once or twice about the body, brought it round to the opposite thigh, proceeding

ceeding afterwards to apply it fully round the body. It was often necessary, especially when I was obliged to employ old bandages, to keep them together with pins in convenient places, after they were applied. But the bandages used, ought, if possible, to be of new flannel, for, after they are some time wore, they lose a great part of their elasticity. With these precautions, I always found them stay on as well as I could wish. But in private practice, where we meet with some corpulent subjects, this will often be more difficult. In such cases, an elastic jacket made of strong flannel, lined with soft wool over the abdomen, and fitted with elastic wires across the back, might answer all the purposes of the bandage. It should also have a strap fixed to the front part, to pass betwixt the thighs, and button again at the small of the back, in order to keep the jacket well down over the abdomen, and to protect the lower end of the rectum from cold, where that part is affected with morbid sensibility. The patent fleecy hosiery jackets sold in the shops, have not in general a thickness of wool on the part covering the abdomen, sufficient to answer the purpose; they are also too easy. Though elastic enough to apply closely to the body, I suspect

suspect they would not produce that degree of pressure on the abdomen which proves so useful, when coverings are first put on. When a jacket of this kind is to be used, an additional quantity of wool should be sewed to the inner part of the front, and the same kind of strap that I have mentioned, employed to keep it down over the belly. However, as this jacket produces but little sensible pressure, I should not altogether trust to it, without applying a roller over it, which might be pinned to the jacket, to prevent it from shifting.

This species of covering, in whatever form it is applied, ought to be kept on, even when the symptoms of dysentery begin to disappear; and, after they are gone, it ought to be laid aside with caution, and by slow degrees.

What individual it was that first suggested this treatment, is of little importance, and I cannot speak on the subject with precision. So far as I know, it has not till now been laid before the public. I was induced to employ it, by hearing that it was recommended with great earnestness by Dr. WHYTE, a physician who had resided at Constantinople, had visited different parts of the Mediterranean,

nean, before Sir RALPH ABERCROMBY'S expedition to Egypt, and, in order to prosecute his medical investigations, came into the service of the army as hospital-mate. He was for some time attached to a corps of Maltese pioneers. An account has since appeared in the public newspapers, that he died in Alexandria, by inoculating himself for the plague, which he had done twice before with impunity, with a view to prove that that disease was not infectious. He was a man of acuteness, but rather of an eccentric turn. But in this instance, I believe he was the discoverer of a very important improvement in medical practice. I found no practitioner in the army of Egypt, who wholly denied its advantages, though previous custom, and I believe, a degree of prejudice against the quarter from which it came, prevented many of them from adopting it as an improvement. When it was mentioned, they in general coldly remarked, that it contained nothing original, as warmth has always been allowed to be a material point in the treatment of dysentery. This, indeed, has been allowed, but it certainly has not been properly attended to, nor fully understood, and no small credit is due to the man who attempted
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ed to rescue this part of practice from the inattention it formerly met with, and to improve the mode of conducting it. The best flannel coverings, used in the ordinary way, though of known utility, by no means approach to the flannel bandage, in point of effect. When they are loosely put on, and liable in any degree to be moved along the skin, or to be partially opened, so as to produce even the most trifling communication with the temperature of the surrounding atmosphere, so delicately sensible is the abdomen of a dysenteric patient to cold, that an irritation is in one moment produced, which mars the advantages of the covering. Even when the bandage, applied as I have described, has become by accident too loose, I have generally seen the bad symptoms return. But, when constantly kept of uniform tightness, it has all the efficacy of a valuable remedy entirely new.

When we administer a purgative in the beginning of the disease, we find a striking advantage in its operation, from being accompanied with this species of swathing. A stool is not, indeed, so readily produced as if the patient were more exposed to cold. The bowels, instead of being excited partly by the

cold air, are solely operated on by the force of the medicine. Instead of that qualm which attends a motion, produced by the combined power of cold and medicine, a comfortable warmth continues to be felt, while the action of the intestines is excited. The irritation of cold produces only a partial action of the gut, which is accompanied with a gnawing sensation in a particular spot of the abdomen. But when the body is bound up in this bandage, the excitement which the bowels receive, being regular and uniform, evacuates them more completely, at the same time that it has the best tendency to restore their healthy functions.

Medical men are divided respecting the propriety of emetics in this disease. The fact probably is, that when given without discrimination, as general correctives of the dysenteric state of the bowels, they are of little service, and only heighten the disease by promoting debility. But on some occasions, they are highly necessary, both in the first and in the subsequent stages. Where there is strong nausea, heaviness about the stomach, and a great reluctance to food, an emetic ought at once to be administered. It is necessary, at the same time, to obtain an
evacu-

evacuation downward. This indeed is of more importance than the other. Some physicians, therefore, first give an emetic, and next morning a purgative ; but it is better to give the emetic in divided doses, so as to operate both by stool and by vomiting. For this purpose, I have generally ordered one-third of a grain of the tartrate of antimony in solution, to be repeated every hour, or every half hour, till it produced the double effect. This is to be followed by copious diluting draughts, in which case it produces, by vomiting and purging together, a pretty thorough evacuation of the intestinal canal. The patient may feel himself worn out from its operation ; but he experiences greater internal comfort and ease, especially if he can obtain a little sleep, which, in these circumstances, may often be done without the exhibition of any opiate. But if, after the operation of his medicine, he is restless from an uncomfortable feeling, and a tendency to griping in the abdomen, he should have fifteen or twenty grains of the pulvis ipecacuanahæ compositus, a medicine which, by producing perspiration, ameliorates the general action of the system. It proves useful even in opposite states of the skin and body.

When

When the skin is destitute of genial warmth, the spirits languid, and the pulse is weak and low, it produces a comfortable glow over the surface. When, on the other hand, the pulse is quick, and the skin burns with a feverish heat, the state of the skin produced by this medicine, still serves as a relieving change, and the patient feels an agreeable coolness. In that feverish state, I have generally found it necessary to prescribe a larger dose.

Next day, if the patient feels easy, and his stools are not very frequent, it is best to give him no active medicine, only taking care to cherish him with tepid drinks. If troubled with gripes, he must take doses of opium, either in the form of extract or tincture, sufficient to relieve his pain. If his stools are very frequent, he should have ten drops of the tincture after every other stool, increasing the dose in proportion to the obstinacy of the case. These opiates are not to be given, as in diarrhœa, with a view to cure the disorder by their astringent power: their intention is only to produce temporary ease, by moderating the action of the bowels. In this respect, they are of essential benefit. The pain of severe gripes would, without such a medicine, soon exhaust the patient's
general

general strength; and the action of the intestinal canal which attends frequent stools, would rapidly weaken that important organ. But, though the intestines require rest after being purged, opiates are hardly ever necessary for the purpose, where a flannel bandage has been properly applied. The bowels, in general, become costive when the effect of the purge is over, and the patient's feelings are in the mean time rendered comfortable. His bowels gather strength by indulging in repose. Yet the disease does not immediately retire. A degree of morbid action continues, and, in place of the natural feces, the same mucus as formerly collects in the bowels. After twenty-four or thirty-six hours of rest, the system must be again excited by a renewal of the purge, both to clear the intestines, and to bring them gradually to a healthy action. By prosecuting, for some time this mode of treatment, alternately exciting the bowels by purgatives, and allowing them to rest, using at the same time the flannel bandage, the greater part of dysenteries in Egypt gradually yielded.

During the whole treatment of this disease, we must see that our patient has such accommodations as will effectually prevent exposure

posure to cold. It is, indeed, one great advantage of the flannel bandage, that, under its use, we are not obliged to shut him up in a warm apartment, or confine him to bed, as we otherwise should. We can allow him all the benefit of respiring a cool and free air, without the risk of exposing the abdomen to a dangerous chilliness. But he cannot bear an air so cool as a man in health, and exposure in the evening is still highly pernicious. If soldiers, in a field-hospital, have no convenience for answering the calls of Nature, without exposing themselves to cold, we shall find it one of the greatest obstacles to the cure of dysentery. To oblige them to walk out on such occasions, merely because they are able, is going on a very false and cruel principle. A bed-pan is almost as necessary for a dysenteric patient, as for a man in fever. Although his strength might allow him to rise out of bed, he cannot get up in the night, and far less go out, without aggravating his disease.

When the intestinal canal is irritated by the acrimony of its contents, as is generally the case, after dysentery has continued for some days, mucilaginous draughts, of starch, gum-arabic, almond-milk, or bees-wax in solution,

lution, have been given by several practitioners, with advantage*. They render the contents of the bowels less acrimonious, and make them pass down in a more easy and agreeable manner. But we must not place much dependence on them by themselves for the cure of the disease, and in many cases we shall be obliged to abandon them; on finding that our patient's stomach will not receive them. In this state of the bowels, warm mucilaginous glysters are of great service, and may be given when drinks of this description are rejected. For this purpose, some physicians have prescribed the drinking of milk; but they have not considered that milk,

* I here transcribe a recipe for the solution of wax, mentioned by Sir JOHN PRINGLE, as communicated to him by Dr. HUCK, and used in the hospitals with good effect during the first American war.

℞. Cerae flav. ꝑiss. sap. hispan. dur. ℥. aq. pur. ꝑi. liquescant leni igne, et assidue agitentur donec in unum coeant, dein effunde materiam in mortarium lapideum, eique paulatim admisce aq. pur. ꝑviii. aq. nuc. mosch. ꝑi. et sacch. alb. q. s. ad grat. sapor.

This, he adds, makes a smooth mixture of no disagreeable taste, whereof the patient takes as much, at proper intervals, as to consume the whole quantity in a day; which is then to be renewed. The soap is only used as a dissolvent of the wax.

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invariably coagulating in the stomach, both in health and disease, loses that soapy quality which it possesses before it is taken. In authors, we frequently meet with prescriptions for the same purpose, in which mutton-suet is the principal ingredient. This I have never used, but I should suspect that, where there is great anorexia, it would be attended with the same disadvantages as other strong animal food. Perhaps some of the expressed oils might be found serviceable on such occasions. It is probable that the oleum ricini derives a great part of its excellence as a purge in dysentery from its oleaginous nature, by which it soothes and defends the intestines at the same time that it excites them.

It is when dysentery proves tedious and obstinate, and is attended with many varying symptoms of debility, that the chief exertion of a physician's skill and attention are called for. We often find all our assiduity requisite to prevent our patient from rapidly declining. While we do our best, his strength continues stationary, and it is a long time before we can procure a decided state of convalescence. Here, no system of directions will suffice for our guidance, without a little experience, and the keen exercise of judgment

ment on every individual circumstance that occurs. We must take care to keep the bowels moderately open, but must avoid the most trifling excess in our laxatives, lest we still further exhaust his reduced strength. Though there should be some tendency to costiveness, if there is no pain in the bowels, it is unnecessary to solicit a motion oftener than once in two days. The intestines will improve in strength by being seldom excited, provided the feces do not accumulate in such quantity as to produce obstruction or annoyance.

Sometimes, however, even in this state of the disease, I have found it necessary to prescribe an emetic. When the alimentary canal is in a weak and torpid state, purgatives, though they clear the bowels, often leave the stomach loaded with crudities, which cannot be brought away without an emetic. It is sometimes difficult, even with an emetic, to evacuate the stomach completely. Its operation should therefore be promoted by plentiful tepid draughts. The chief objection to emetics is, the weakness they induce in the system. The lassitude felt immediately after their operation is often distressing to a reduced patient. I have seen a man so much
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overpowered by it, that every respiration he made was attended with an insupportable pain and a spasmodic action of the diaphragm, which threatened speedy death. But this affection was speedily removed by three or four grains of camphor; and the debility that remained was without restlessness. The weakness produced by emetics, when properly administered in this disease, is seldom permanent. More strength is gained in the course of a day, by the relief which the stomach experiences, than is lost by the fatigue of vomiting; and the whole system is brought to a better condition. Emetics, however, must be given very sparingly, and only in those cases in which the stomach gradually collects a quantity of matter, from mere inability to transmit it downward. This is signified by an affection of the stomach different from simple want of appetite. There is a reluctance even to cordials, and though the body is affected with faintness, the stomach, being acted on by the substances it contains, feels as if satiated with stimulants.

In this debilitated state, cordials are an object of chief importance. Wine may be given with advantage, if we ascertain that it will not turn sour in the stomach. Perhaps in a few
few

few days wine will be loathed, in which case we must have recourse to some other substance. Camphor is one of the most useful articles in this state of the disease. If repeated with proper frequency, it has a more lasting effect than wine, in relieving the patient from sinking of the heart and prostration of strength, and it produces an agreeable sensation of warmth in the belly. The stimulants given must be suited, both in kind and degree, to the state of the patient's sensations. If we give an improper stimulant, we produce uneasiness, and tamper with his constitution. If we give any one in too large quantity, we exhaust his strength, and produce a state of indirect debility. Aromatics, which I formerly recommended as early preventives of the disease, are, in this stage of it, highly beneficial. Their efficacy is very great in restoring the tone of the stomach, and of all the internal parts. Cinnamon, cloves, pepper, allspice and ginger, ought to be tried in succession, and preferred according to their comparative effects on the patient's constitution. When the tendency to fainting is strong, peppermint-water is an excellent restorative. Its effect, indeed, is only temporary; but the sensation of faintness is so distressing, that

we ought always to give this, or some other powerful cordial, as often as it occurs. If actual deliquium takes place, aqua ammoniæ, tinctura lavendulæ, and other preparations that powerfully affect the system through the olfactory nerves, are to be kept in view.

Very often wine or ardent spirits, taken to a slight degree of inebriety, especially if attended with a little of the pleasure of social conviviality, proves of material benefit in this state of languor. When a dysenteric patient has been nearly ruined for want of bodily exercise and mental amusement, accommodated perhaps in a lonely tent*, deprived, by the state of the country, of some of the common comforts of life, and his attention has been left to be solely occupied with his own distresses, and with gloomy calculations on the degree of his danger, I have seen a little giddiness, bordering on intoxication (which in these circumstances is effected by a very moderate quantity of spirituous liquor) serve essentially to relieve his sufferings. This may often be repeated with advantage for several days successively.

* This applies rather to officers than to privates, as the latter, on falling sick, are generally surrounded by their companions, while a sick officer is often left by himself.

The patient does not, as in other cases, feel more languid after the first stimulating effect of the spirits is over. On the contrary, that temporary cessation of uneasiness improves his strength, and makes him abler to bear the distress that remains; while his imagination, retracing the agreeable partial delirium in which he was involved, finds an amusement that serves still further to mitigate his sufferings. Without some stimulant of this kind, he would very soon sink under his disease. For this reason, when wine and spirits are not to be obtained, it is necessary to contrive a substitute. An excellent one presented itself in Egypt, in smoking the mild tobacco of the country. When used in proper moderation, this was, in some cases, superior to exhilarating liquors. I observed the effects of tobacco on our countrymen, to vary according to the state and form of the disease: In a state of oppressive debility, when the patient was seized in the evenings with deplorable fits of restlessness and languor, two pipes of tobacco soothed his uneasiness, renewed his strength, and prepared him for sleep, which he could not otherwise enjoy. But the nervous system is so delicate, and so easily overcharged in dysentery, that our patient found it neces-

sary to guard against the free use of tobacco. If he used it on all occasions, if he endeavoured to relieve his languor by it in the morning as well as in the evening, it often failed of its intended effect, and only left on the sensitive system a strong sensation of disgust, which obliged him to abstain from it for a time, before it could again become serviceable. It was necessary, therefore, to keep it in reserve for the more serious paroxysms of oppression. Tobacco proved most generally useful when the bowels were in a state of torpor. After they recovered strength, and became more sensible to the regular stimuli of the system, with some remains of morbid irritability, smoking often excited them to action with a degree of griping. In this state, it was necessary, before prescribing it, to make a comparative estimate of its advantages and its disadvantages; and, though the latter often preponderated, it was one comfort, that it could be more easily dispensed with than in a state of greater debility. Tobacco proved remarkably effectual for relieving those alarming fits of debility and panting after the operation of an emetic, which I have already mentioned.

If, along with that restlessness which often accompanied great debility, the patient was
attacked

attacked with distressing head-achs, which deprived him of repose, a large opiate in the evening (not less than three grains of the purified extract) was sometimes highly beneficial. Though it might fail in producing immediate sleep, it obviated pain. It produced a state of partial delirium, in which the patient lay quietly in bed, and forgot his sufferings. Towards morning it was followed by two or three hours of refreshing sleep. Next day he felt more cheerful than usual, and less a prey to uneasiness in the bowels. But this powerful stimulant, if too soon and too frequently repeated, loses its effect, and only exhausts the strength. The excitement which it produces is one of those occasional expedients by which we procure for our patient a temporary suspension of his sufferings, and thus enable him to accumulate a little vigour; but its frequent repetition does not produce such a steady stimulant effect as can entitle it to be prescribed for a tonic course of any continuance.

If the patient, notwithstanding the use of the flannel bandage, felt a sensation of rawness in his stomach and bowels, as sometimes happened when the cure was tedious, he was ordered to lie frequently on his belly. The

degree of pressure which that posture produced always afforded considerable relief.

Sometimes, besides that general uneasiness, or those occasional gripings which accompany dysentery, there is a fixed pain in one part of the abdomen which refuses to yield to our common internal remedies. This indicates a tendency to a more active inflammatory affection in a particular part of the intestinal canal. It is to be obviated by frequent fomentations, and to these, if taken in time, it generally yields. When it does not, it will often be relieved by the application of leeches, and still more frequently by a large blister *, If it re-
sists

* It may at first appear strange that leeches or blisters, externally applied, should have any effect on the intestines, which we know to be not immediately connected with the anterior parietes of the abdomen. More advantage might be expected by applying such external remedies over the vertebræ of the back or loins, where they would be nearer to the nerves that supply the intestines. It is, however, an undeniable fact, that they give greatest relief when applied immediately over the seat of pain. This shews that a constant sympathy exists between parts in immediate contact, though not continuous. The effect cannot be communicated from the parietes of the abdomen immediately to the intestines, in the same manner as heat is conveyed along two conducting substances in close contact. It must proceed from a sympathy which has the nervous system for its
medium,

sists these remedies, we must determine on general blood-letting, provided the patient's strength will at all admit of it.

Tenesmus is a symptom so distressing in itself, and so alarming in its consequences, that

medium. The intermediate parts of that system, indeed, exhibit no marks of excitement; but the case is exactly the same when distant parts of the body act together from sympathy. The following reasons may be given for juxta position being a cause of sympathy:—1. That such parts have a constant feeling of each other's surfaces. 2. They are accustomed to undergo in conjunction the same mechanical motions. We know that a sympathy is often formed betwixt two organs by the mere habit of associating the action of the one with that of the other, whether such a habit is, or is not, connected with volition. We know also, that in respiration, the intestines and the parietes of the abdomen undergo in conjunction the same motions when pressed alternately outward and inward by the action of the diaphragm. From this circumstance a constant sympathy may arise, extending to those sensations which are produced by chemical stimulants, as well as to those which proceed from mechanical pressure. 3. This sympathy is also formed and promoted by the habit which the mind has of directing its attention at the same time to any two parts in mutual contact, such as the abdominal viscera and the parietes that touch them. But in whatever manner we account for it, the fact itself is well established, that blisters or leeches prescribed for the relief of pain in the viscera, are most successful when applied immediately over the seat of pain, without regard to any continuity of structure in the parts concerned.

the speedy relief of it is always an object of great importance. When there is reason to suspect that it arises from hardened feces, a dose of some purging salt, or equal parts of the electuarium sennæ and the acidulous tartrite of potash, should be given. This not only clears the intestines in a short time, and thus delivers the patient from the troublesome effects of the feces, but evacuates them in a mode that renders their passage less irksome. By bringing off moisture along with them, it promotes the lubricity of the parts, and by occupying the gut in this species of action, it renders it less sensible to the pain attending their pressure. But tenesmus most frequently arises from an irritable state of the rectum, produced by the frequency of its excitement, or by the erosion of its villous coat, rendering it morbidly sensible to the acrimony of the feces, as well as to their pressure and friction. The pain of tenesmus, however, is not confined to the part immediately acted on, but extends, in a shooting manner, over a large portion of the intestinal canal. It is best obviated by glysters of starch and opium. The mucilaginous quality of the starch soothes the parts to which it is applied; the dilution which the fluid gives blunts the acrimony of their
liquid

liquid contents ; the opium produces ease on the same principle on which it relieves, in other cases, both local and general pain. These glysters ought to be of an agreeable warmth, and frequently repeated. Fomentations of the abdomen are often useful in tenesmus, by removing the tendency to pain in the colon, and, through it as a medium, affecting the rectum. Great care must always be taken, under this symptom, to defend the anus with a warm woollen covering.

Thus far I have given an account of the practice which I chiefly followed, and which, from an experience very extensive for the shortness of the time, I found to succeed generally to my wishes. Some patients died, who had been previously worn out, before the means here mentioned were employed. Others fell victims to it, who would have recovered, if they had not been in want of those comforts which to a sick man become necessities of life, and if instead of lying on straw in a tent, they had been accommodated with good beds in a well ventilated building. I was prevented by an ophthalmia, and an affection of the bowels, from keeping my cases so fully detailed in writing as I could have wished, during the time that this disease was most
preva-

prevalent. There is one circumstance, however, that renders an account of cases less indispensable ; that the plan I have laid down can never be deemed hazardous, and will seldom interfere with the exhibition of other remedies. The articles of cure I have recommended, are such as I have seen repeatedly effectual. The effects of the flannel bandage were too speedy and too constant to be ascribed to a false cause. I cannot express myself more justly on the subject, than by saying that I found them equally remarkable with the effects of the cold affusion in ardent fever, as recommended by Dr. CURRIE *. I have repeatedly seen patients saved from the brink of death by the use of it. Among these, were two officers of the 30th Regiment of Foot, Mr. DOLLING and Mr. H. CRAIG. Mr. D. was reduced to so low a state of debility, that when I raised him to the erect posture to apply the roller, he was seized with instant syncope. In two days, however, after he began to wear it, his strength was greatly improved, and his subsequent reco-

* Of these last effects I had ample proof in Minorca in August 1800, in a fever that prevailed in the 2d, or Queen's Regiment.

very

very was as rapid as the progress of his disease had been previously alarming. Mr. C. laboured chiefly under violent diarrhœal symptoms, which tended speedily to degenerate into dysentery. The relief he received from internal medicine was very fleeting, and quickly followed by a renewal of the diseased symptoms. This I attributed to the fluctuating temperature that surrounded his body, the alternations of heat and cold to which a man is always subjected in such a climate, especially in a state of encampment. His strength and appetite rapidly declined, and his friends apprehended great danger. It was almost resolved to send him immediately to Rosetta, a distance of seventy miles. On seeing him, I encouraged him to expect a speedy recovery, without taking that step, by the application of a flannel bandage. It was accompanied with a purgative, that the bowels might not too suddenly cease to act, from the change which the swathing produced in his habit of body. From that hour the state of his bowels improved, till he completely recovered. This happened within ten days. To these two examples I may add, that I owed my own recovery from an obstinate and tedious dysentery to the same remedy.

medy. In the hands of Dr. WHYTE, this practice had great success in the hospital of the Maltese corps. He describes it in a short manuscript, of which there are copies in the possession of some of the medical officers of the army of Egypt. Mr. WEST told me that he experienced great advantage from it among his patients in the Royals and Queen's Regiments. I should be happy if such gentlemen as have made a full and accurate trial of it, would communicate the results to the public. Lest, however, too much should be expected from it, I must mention that, when the disease had advanced so far as to produce not only extreme debility, with constant excruciating gripes and tenesmus, but also very frequent small stools, consisting of nothing but dark coagulated blood, the flannel bandage, though it often gave some relief, was of little ultimate avail.

I shall now make a few observations on some other articles of cure, beginning with venesection.

Venesection is very frequently employed in the first stage of dysentery, on the same principle as in pneumonia and enteritis. Sir JOHN PRINGLE says, that he usually began with a moderate bleeding, with a view to correct
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the inflammation, and fulness of blood, which accompany this disease. But he disapproved of repeated blood-lettings, as hurtful in their tendency, on account of the putrid origin of dysentery. In weak habits, where there were few febrile symptoms, he wholly omitted it. I believe he would have done better, had he omitted it in them all. In every case it brings on great increase of debility. It ought not to be employed, till we see that other means are likely to fail. The febrile symptoms proper to the dysentery I have described, are uniformly modified by the state of the bowels, and will generally yield to the simple means already mentioned. By relieving the sensations in the abdomen, we correct the febrile motion of the arteries. A degree of thirst may continue, but it is easily removed by acidulated drinks. I would therefore only employ blood-letting in cases of urgent necessity, such as that which I have already mentioned, where there is a fixed acute pain refusing to yield to the common remedies, and indicating a high inflammation allied to that of enteritis. Another case is, where bloody stools have continued for two or three days, and our medicines at the same time produce little or no alteration. By diminishing, in a
case

case like this, the quantity of the circulating fluid, we may often correct the distention of the vessels of the intestinal canal, may prevent the blood from exuding into the cavity of the gut, and thus promote a healing process in the parts. If the patient, however, is very weak, this practice must be accompanied with the greatest caution, and in every case we must recollect, that before the disease takes a favourable turn, his strength tends daily to decline, and has a chance of declining in a very rapid manner.

A more extraordinary mode of venesection was recommended as an infallible cure for dysentery, by Dr. WHITE, the gentleman I have already mentioned. He first employed it on himself, on finding other means fail. He took away such a quantity of blood as produced deliquium animi, and would have appeared to the greater part of medical men no better than murder*. This, he asserted, effected a sudden and complete cure of the disease. He granted, however, that it was not generally necessary, and that the disease would, for the most part, yield to gentler treatment,

* I am sorry I do not recollect the exact quantity he mentions.

particularly to flannel bandages. In giving my opinion of this blood-letting, I can only say that I have no experience either for it or against it. I would by no means reject it without trial, merely from the idea that because dysentery is an asthenic disease, a copious blood-letting must be injurious, by still further reducing the vital power. I can grant it not altogether impossible for this practice, by suddenly altering the condition of the vital motions, to produce a return of sound action, both in the bowels and through the system*. The idea should not be rejected till confuted by experience; far less should it be recommended till its justness is established by indisputable facts. If we absolutely found that the disease would not yield to any other methods we could adopt, we should be justified in making trial of this. New methods of cure cannot be explored with too much

* SYDENHAM asserts, that there are cases of disease in which venesection, if sparingly employed, does positive harm, but when copiously used, operates as a powerful remedy. See his account of the pestilential fever and plague of the years 1665 and 1666.

How far this consideration may tend to reconcile the discordant accounts of the effects of venesection, in the yellow-fever of the West Indies, I shall not venture to affirm.

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ardour, where the old ones fail. But for my own part, I have always seen such dysenteries as I have here described, when taken in time, and treated with judgment and care, yield to other means. Indeed, where the constitution is worn out by very frequent or long-continued disease, the patient often sinks so inevitably under his accumulated infirmities, that all we can do is to palliate the symptoms while he lives. In such cases, I am afraid blood-letting so copious is altogether out of the question. It would precipitate him at once into his grave.

Dr. MOSELEY, in his *Treatise on Tropical Diseases*, lays down a new cure for dysentery, which he says never failed with him: That is, to keep the patient under the constant influence of antimonial sudorifics, after the necessary evacuations by the rectum. The success of this practice, in that author's hands, I do not call in question. In his account of dysentery, he always supposes the stools to be copious, and I have no doubt that this method of cure may prove effectual, not only in diarrhœas, but in some of the dysenteries he describes. But I cannot put confidence in its universal efficacy. I have the most respectable authority for saying, that it has received

ceived a full trial in the hands of some other medical men, both in England and the West Indies without success. Dr. MOSELEY, believing this method sufficient to cure every dysentery in its acute stage, pronounces all chronic tedious dysenteries, the consequences of mismanagement. But this disease, which assumes a vast variety of forms, often comes on by such imperceptible degrees, that we can hardly denominate any one period of it an acute stage*. In such cases, as there is no fever for sudorifics to subdue, these medicines will expend their force in reducing the *vis vitæ*. At the commencement of the cure, I give sometimes a sudorific dose after purging, with a view to produce a more comfortable state of body, and to divert the action of the system from its morbid bias (in DARWIN'S language, to break the morbid association). But when the disease has been

* Dr. MOSELEY, at page 195 of his work, expresses himself as follows: "Of the vast number who had the dysentery in our hospitals at Castile Fort and Up-park, we did not lose one man in the acute state of the disease." This seems to imply, that some were lost in the chronic state, and in that state it is more frequently fatal than in the other, whether sudorifics have been employed or not. See Dr. J. HUNTER on the Diseases of Jamaica.

of some continuance, and our patient's strength is at a low ebb, I should not think it prudent to order any thing of this kind, except an occasional gentle diaphoretic, just sufficient to produce a slight glow of the skin, and to make the patient lie easy in bed. But even that should not be frequently repeated. We should also endeavour first to accomplish our purpose by tepid drinks. If these fail, opium will often succeed, and then, from its power in relieving pain, I consider it as preferable to any other medicine. If, from a knowledge of our patient's constitution, we suspect that opium by itself will not be effectual, we must have recourse to the *pulvis ipecacuanæ compositus*, or the *pulvis antimonialis*. I prefer these to the *aqua ammoniæ acetatæ*, and other similar preparations of the neutral kind, which are unpleasant to the taste, and often productive of gripes in the abdomen.

Gentle salivation by mercury has been employed in dysentery with the greatest success. Calomel is given in doses of three grains every four hours, till it produces tenderness in the mouth and gums, and this tenderness is kept up till the disease assumes a more favourable appearance. When the progress of the disease is rapid, it is given in larger quantities, to
produce

produce the effect more speedily. Gripes and tenesmus have, under this medicine, soon given way, and the stools, which were previously mucous, have become feculent. This medicine may be employed with success in cases of the greatest debility, and it is mentioned as one of its advantages, that dysenteries cured by it are not liable to relapse. For an account of the subject, I refer to Dr. CLARK'S Observations on the Diseases which occur in long Voyages to Hot Countries, the edition of 1792. He gave from three to ten grains of calomel every night with an opiate. The account he gives of the success of his practice is clear and satisfactory. His cases ought to be well attended to by every practitioner, who, on finding dysentery obstinate, would wish to employ mercurials. This description of medicines, however, is well known to be hurtful, where there is a scorbutic diathesis or a scrophulous constitution. In such cases, the treatment I have laid down is free from this objection, and will often save a patient when the common remedies fail. In those dysenteries which are attended with violent primary fever, a form of the disease with which comparatively I am but little acquainted, when there is a constant increased

heat over the whole surface, and no morbid sensibility to cold in the abdomen, flannel bandages may perhaps prove of less service. In this case I certainly should employ mercurials; but, as soon as the violent pyrexia subsides, and is succeeded by uneasiness in the bowels, with debility, and low symptomatic fever, I should accompany the exhibition of mercury with the use of a bandage. Dr. CLARK mentions in the history of one or two of his cases, that the gripes and tenesmus returned, after the mouth was affected by calomel, though they were ultimately removed, and the ulcerations of the bowels healed, by persevering in the use of it. The power of a flannel bandage in relieving gripes is so great, that it is highly probable that the temporary return of those symptoms would be prevented by its use. I have no hesitation in concluding that it will on every occasion accelerate the effects of this remedy, both from having seen it so effectual in what is called chronic dysentery, and from the well-known importance of warmth under a course of salivation in any disease. Here it will be proper to mention from Dr. CLARK, concerning calomel, that on finding all other purgatives rejected by vomiting, he exhibited it in conjunction

junction with a little opium, and found that it not only remained on the stomach, but allayed the vomiting, and produced natural evacuations.

M. BARBES, one of the physicians of the French army in Egypt, says that a large blister applied to the abdomen, gave almost instantaneous relief in several desperate cases of dysentery, and put the patient's life out of danger in a few days. I have already mentioned the advantage derived from blisters, when pain of the bowels is fixed and acute. I have not tried their power in any other cases.

The following passage occurs in the fifth volume of the Medical and Physical Journal, page 490 :

“ Mr. BREFELD (who I suppose is a German practitioner), recommends washing of the belly with cold water, as of great avail in dysentery ; for, says he, thereby the solid parts are not only strengthened, and the increased tendency of the fluids to corruption greatly counteracted, but it likewise excites motions by which any obstructions are removed, and the inflammatory and erysipelatous state of the bowels, and the topical sensibility of the parts in a great mea-

“ sure diminished. He found it of good effect
“ in a dysenteric epidemy, to drink cold wa-
“ ter, and frequently, when opiates and an-
“ timonials were without advantage, cold
“ water, repeatedly drank, diminished the
“ pains in a very short time, and rendered
“ the stools feculent. When the patients
“ were much debilitated, it was mixed with
“ a little wine.”

I shall not deny that this gentleman may have seen such instances of good effects from that mode of treatment ; but every medical man, practically conversant with the subject, must know that it will by no means apply to those dysenteries which attack our countrymen in a hot climate. The external application of cold water is generally attended with the risk of producing severe gripes, and remarkably accelerating the progress of the disease. In this case, the whole vigour of the constitution rapidly gives way. In the first stages of the disorder, I am certain it can never be of service ; and in the more advanced periods of a lengthened dysentery, the risk is too great to authorize us to prescribe it. I sometimes employed it with great caution on my own person, when the sensibility of the bowels was not too delicate. I
took

took care to put on the bandage immediately after it, to prevent griping and other unpleasant consequences. But I never ordered it for any other patient, as it appeared impracticable to make so nice a discrimination as to pronounce it in any case a warrantable practice. The drinking of very cold water I uniformly found hurtful. When mixed with a spirituous substance, such as wine, I have already remarked that it was safer. Thirst, however, was best quenched by a mild liquid moderately cool, drank after the body had been some time at rest. The smallest heating exercise, under diseases of the bowels, produced a flutter in the motion of the heart, and an increased delicacy of the stomach, which rendered cold water dangerous in the extreme. The practice of Mr. BREFELD may be attended with occasional success in the climate of Germany and Great Britain. More abundant evidence, however, will be necessary, before it can be considered as generally efficacious even in these countries, and I know that in several instances in this country, the effects of cold water, both externally and internally, have been pernicious. Indeed, if the disease has been of some duration, and if

its symptoms are not acute, the external application of cold water may at times prove a useful tonic. Though it should produce gripes, these are not attended with such a rapid destruction of the *vis vitæ* as in a hot climate, and are at the same time more easily corrected. The disease upon the whole is much slower in its course. It is of a more chronic type in a temperate climate, and consequently more benefit may be expected from the seasonable use of well-chosen tonic remedies. As for pure cold water internally taken, I conceive it to be always an improper beverage. It will, indeed, excite the bowels, and may occasionally do this with salubrious effect. But its most frequent tendency, excepting where convalescence is greatly advanced, is to excite them to a disagreeable species of action, attended with the risk of subsequent tormina. The bowels may be brought to a proper state of excitement in a safer and more agreeable manner, by the judicious use of *electuarium sennæ*.

SECT. VI.

Diet in Dysentery.

THE acido-dulces fruits ought in general to be avoided. They render the contents of the stomach so acid, or otherwise acrimonious, as to produce essential detriment. Many fruits, which, in a state of health, invigorate the stomach, have no other effect in dysentery, than to promote those unpleasant sensations, to which there is always a tendency through the whole alimentary canal, and to heighten the various symptoms of disease. However grateful to the taste, they seldom fail, when received into the stomach, to produce a degree of nausea, which in this state of the system, greatly adds to the patient's other distresses. During convalescence, fruits may sometimes prove safe and advantageous. When well chosen, and used in small quantity, they may serve to excite in a favourable manner the torpid intestines, operating both as tonics and as gentle laxatives. But the patient is in danger of unconsciously exceeding his proper bounds, and thus exposing him-

himself, at least, to a partial relapse of the disease. We must, therefore, strictly warn him against the free gratification of his increasing relish for fruits, and let him know that the less he takes for a considerable time, his recovery will be so much the surer.

As for strong animal food, a dysenteric patient is in a great measure debarred from the use of it, by the extreme weakness of his appetite, and, in general, it has a bad tendency on his system. But the extent of our prohibitions from it, ought to be regulated by the state of the disease. We ought also to consult past experience, in order to select those particular kinds of animal food which we will at any time allow him to use. The flesh of fowls, notwithstanding what some physiologists say to the contrary, is much lighter, and more proper for a delicate stomach, than that of quadrupeds. Beef may be safe and nourishing, in cases where mutton would too strongly excite the bowels, and mutton will often be safe where pork would prove prejudicial. The flesh of adult animals is, at present, considered as preferable, in point of digestibility, to that of young ones, because experiments on the gastric juice have shewn the former to be more readily dissolved
in

in this liquid. But while I admire the ingenuity, and acknowledge the importance of those experiments, I am not satisfied with the justness of this conclusion*. The effects of various aliments do not entirely depend on their chemical solubility in the gastric fluid. These substances, before they are dissolved, have each its own effect on the living fibres of the stomach, with which it comes in contact, an effect that may or may not be salubrious, according to certain qualities independent of its solubility, and according to the circumstances in which it is taken. To render an aliment salubrious in any given state of the system, it ought, on its first reception into the stomach, to communicate an agreeable sensation; or, should the sensation be, in some instances, from its pungency or otherwise, unpleasant at first, it ought ultimately to prove agreeable. It ought, at the same time, to excite the coats

* I allude to the inaugural dissertation of Dr. STEVENS, "De Concoctu Ciborum," so well known in the medical world, for a beautiful series of physiological experiments on the solvent qualities of the gastric juice. Some further experiments, however, are still wanted, to correct and complete our knowledge of the subject which that gentleman started.

of the stomach to a more copious secretion of the gastric juice, by which it is to be dissolved. Above all, it ought to communicate no sensation bordering on nausea. On these principles, I would, on some occasions, give the preference to the flesh of very young animals, as lighter, and more easy of digestion than that of older ones. Indeed, where there is the same quantity of gastric fluid, it may require longer time to dissolve in the stomach, and therefore is less nutritious to people in good health. But I have, in many trials on delicate stomachs, found it less apt to produce any tendency to surfeit; from which I conclude that it is more favourable to the healthy action of the stomach, and consequently to the secretion of the gastric fluid. At all events, it gives less annoyance while it remains undissolved.

But, when a patient is greatly reduced, and the tone of the alimentary canal is gone, he nauseates every species of animal food. Even milk, however much diluted, does not remain three minutes in his stomach, when he rejects it by vomiting; or, if he does not reject it, his sensations are oppressed with insupportable nausea. In this situation, I have seen medical men improperly attempt to force a patient to
make

make use of strong animal food. Conceiving him to be sinking for want of support, and imagining that, by giving the strongest food, they would convey the most abundant nourishment to decaying Nature, if they found it impracticable to force pieces of fat meat down the œsophagus, they set before him strong oleaginous broths, and terrified him with the most dismal predictions if he refused to swallow them. At the same time, these articles were so absolutely repulsive to the patient's feelings, that, though he doubted not the judgment of his physician, he chose rather to expose himself to the fulfilment of his predictions, than submit to the insupportable oppression which that diet produced. The smallest reflection on the laws of the animal system, will teach us that aliments which the stomach nauseates can never convey nourishment. They are never dissolved in the gastric juice; far less are they formed into chyle, and absorbed by the lacteals. Acidity or putrescence is the effect of mingling them with the juices of the stomach. When they pass into the small intestines, the mouths of the lacteals, in a state of morbid sensibility, are excited by their presence to a species of action repugnant to their reception. Such an increase of nausea and debility is produced

duced in these organs by the incongruous attempt, as most probably unfits the patient to receive even those aliments which otherwise would have proved serviceable. This practice is in a peculiar manner preposterous, when the patient is able to take lighter nutriment, however small in quantity. When the powers of digestion are so much reduced, very little is sufficient to nourish him. If he can take milk, it is one of the best substances he can use. If not, he may use panada, or may contrive to swallow a little bread, by mixing it in sparing crumbs with his drink. He should endeavour to excite his appetite by the use of gentle stimulants, such as coffee or tea. These he will probably be obliged to take without sugar, which is often nauseated in dysentery, by persons who, in health, find it a necessary ingredient in tea. If none of these articles can be received, thin whey, or a decoction of barley, will serve, for a time, to nourish the exhausted constitution. Sir JOHN PRINGLE mentions, that in some cases where the stomach would not receive food, he made the patient live, for two or three days, entirely on copious draughts of tepid water, and that this had a most successful issue in ameliorating the state of the bowels. I have tried, in a few instances, to
follow

follow his example, but not with equal success. The patient generally nauseated and vomited after drinking a little of the water. I therefore found it necessary to give a decoction of barley or rice. These drinks, if not taken in an improper manner, proved excellent articles of diet. It was most eligible to give them just milk-warm, or rather a little cooler. When too cold, they produced gripes. When too warm, they brought on a profuse perspiration, and exposed the patient to the risk of a subsequent chill. It was always in our power cautiously to mix with them a small quantity of milk or some other substantial article, in a gradual manner, as the patient's appetite improved. Many other light nutritive substances will occur to every attentive practitioner. The field for selection is sufficiently ample. The mixture of a little ginger or aromatic powder, is highly useful for disposing the stomach to receive those liquid aliments which we think proper to give.

SECT. VII.

*Treatment of some Complaints consequent upon
Dysentery.*

IF our patient, after surmounting the worst stages of the disease, happen to be affected with prolapsus ani, with a tendency to phlegmous about the anus, to hemorrhoids, or to fistula, from the relaxed and irritable state of the extremity of the rectum, we should make him use frequent steam fomentations, by sitting over a vessel of hot water. We should also take care to keep these parts particularly warm. Four or five folds of light soft flannel, sewed to the inside of the small-clothes, and kept close up to the parts, will materially relieve him. The irritating influence of cold is the greatest enemy to such complaints, and it is from inattention to this circumstance that they run so often to a great height, before the patient applies for medical advice. When cold is obviated in this simple manner, the complaint, if recent, soon disappears. When it proves obstinate, we must have recourse to the usual remedies for this class of local diseases.

When

When dysentery leaves a diarrhœa behind it, astringents should not be too readily resorted to. Warm clothing, light diet, and exercise in the open air, will often be sufficient to subdue it.

While our patient's recovery advances, and even after his constitution appears, both to himself and to others, restored to perfect soundness, we must direct him to continue in the most vigilant care of his health, and to remember that his constitution will for some time be delicate, and, on slight occasions, liable to injury. In these circumstances, he is to be considered as predisposed to a second attack of the disease, and therefore ought to keep in view the directions that come under the head of prevention.

THE END.

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